DOCUMENT RESUME

ED 198 776 HE 013 632

TITLE Higher Education and Development: A Selection of Papers Presented to the Golden Jubilee Seminar.
INSTITUTION Association of Indian Universities, New Delhi (India).
PUB DATE 75
NOTE 184p.
AVAILABLE FROM Association of Indian Universities, Rouse Avenue, New Delhi, India.

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Agricultural Education: Change Strategies: Economic Development: Economic Factors: *Educational Development: Educational Policy: Educational Trends: *Foreign Countries: *Higher Education: *Public Policy: Social Change
IDENTIFIERS *India

ABSTRACT

Selected papers on higher education and development that were presented to the Golden Jubilee Celebrations of the Association of Indian Universities are presented. Topics include development and underdevelopment, recent trends in development strategy, and India in the 1980's and 1990's. Contents include the following: "Development and Underdevelopment: Kerala and Uttar Pradesh," by B. K. Nayar: "Higher Education and Development," by A. B. Shah: "Development and Underdevelopment," by Durgadas Roy: "Notes on Some Aspects of the Strategy of Economic Development in India," by Ranjit Sau: "Anti-Development on a World Scale," by Narindar Singh: "Transfer of Technology, Development, and Underdevelopment," by P. V. Indiresan: "Higher Education and National Development," by J. N. Kapur; "Education and Development Strategy," by S.C. Goel: "Higher Education and Development Changing Strategies in the Indian Context," by J. Veeraraghavan: "Some Reflections on the Strategy of Human Resource Development in Developing Economies," by P. D. Shrimali: "Education and Social Change," by B. V. Shah: "Recent Trends in the Strategy of Educational Development," by Satish Chandra: "Agricultural Science, and Higher Education in India," by G. Rangaswami: "Education and Dynamics of Development," by Gunvant B. Shah: "The Indian University in the 80's and 90's," by Amrik Singh: "India in the 80's and 90's," by P. G. Deo: "Higher Education in 1980's and 90's in India," by N. V. Subba Rao: and "India in 1980's and Relation to Higher Education," by G. R. Mhaisekar. (SW)

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A Selection of Papers Presented to the
Golden Jubilee Seminar

HE013 632

ASSOCIATION OF INDIAN UNIVERSITIES
Rouse Avenue, New Delhi

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Printed at Delhi University Press, Delhi-110007.

CONTENTS

Keynote Address	Malcolm S. Adiseshiah	i
In Place of an Introduction	V. V. John	1

Development and Underdevelopment

Higher Education and Development	A. B. Shah	9
Development and Underdevelopment	Durgadas Roy	20
Notes on some Aspects of the Strategy of Economic Development in India	Ranjit Sau	27
Anti-Development on a World Scale	Narindar Singh	45
Transfer of Technology, Development and Underdevelopment	P. V. Indiresan	59
Higher Education and National Development	J. N. Kapur	61
Development and Underdevelopment : Kerala and Uttar Pradesh	B. K. Nayar	71

Recent Trends in Development Strategy

Education and Development Strategy	S. C. Goel	77
Higher Education and Development Changing Strategies in the Indian Context	J. Veeraraghavan	87
Some Reflections on the Strategy of Human Resource Development in Developing Economies	P. D. Shrimali	100
Education and Social Change	B. V. Shah	106
Recent Trends in the Strategy of Educational Development	Satish Chandra	118
Agricultural Sciences and Higher Education in India	G. Rangaswami	124
Education and Dynamics of Development	Gunvant B. Shah	130

India in the 80's and 90's

The Indian University in the 80's and 90's — Amrik Singh 132
India in the 80's and 90's — P. G. Deo 143
Higher Education in 1980's and 90's in india — N. V. Subba Rao 149
India in 1980's in Relation to Higher Education — G. R. Mhaisekar 155

KEYNOTE ADDRESS

Malcolm S. Adiseshiah

The Golden Jubilee Celebrations of the Association of Indian Universities might well begin with a stock taking, of what our universities have achieved in over a century and a half of their existence and in the half a century of the functioning of your Association, as well as with some reflections on our future perspectives.

Achievements: The achievements of our universities and institutions of higher education are impressive. From their founding days in the mid ninteenth century, they provided the leadership for the country—as legislators, jurists, civil servants, educators, freedom fighters, planners, entrepreneurs and critical gadflys against all forms of bureaucracy, power abuse and concentration and resultant corruption. Among our political leaders, we recall those who founded and ran university institutions—Raja Ram Mohan Roy, Ashutosh and Shyamaprasad Mukherjee, Pandit Madan Mohan Malaviya, Mahatma Gandhi, Zahir Husain, C. R. Reddy, Radhakrishnan, among our cultural leaders whose names are associated with the foundation of universities, Rabindranath Tagore, Rukmini Devi, Ramakrishna, Aurobindo and Syed Ahmed and among jurists and men of affairs, C.D. Deshmukh, A. Ramaswamy, Lakshmanaswamy, Gajendragadkar, Kale, Gadgil, C.P. Ramaswamy, Annamalai, Hansa Mehta, Avinasilangam, G. Ramachandran and a whole host of men and women to whom at this moment we should pay reverential tribute.

Our universities have been effective centres for the contribution to and transmission of knowledge from one generation to the next. In some areas of knowledge, it has been an act of conservation as in the case of our classics, Sanskrit, Arabic, Persian and Tamil. Some have involved intensive research into past events and trends as in the sace of our Country's history and the histories of its great cultural regions. Others have involved a renaisssance as in the case of our fourteen national languages and the flowering of their literature and poetry—starting with Bengali and Tamil and moving on to Hindi, Telugu, Urdu, Punjabi and Gujarati etc, and resurgence of our major art forms of dance, drama and music. Again in the pure sciences of physics, chemistry, botany and mathematics, as well as the social & human sciences the universities have played a significant part in pushing back the frontiers of knowledge, of dwelling long and arduously in the twilight zone between the known and unknown, and in transmitting faithfully both received and new knowledge. I merely recall the names of Ramanujam, Raman, Jagdish Chandra Bose, Birbal Sahni, Mahalanobis, Nilakanta Sastri, Varadachari, Annadurai, Azad, Kabir as the start of an unending honour roll of knowledge contributors and disseminators.

Our Universities and institutions of higher education have diversified themselves in response to the knowledge explosion that has been taking place and the societal demands that they have faced. The rapid expansion of knowledge has meant that these institutions can no longer carry out their original synthesising, encyclopaedic mandate, which the term 'universitas' conveyed, they had to become more and more specialised institutions. They could no longer turn out gentlemen who knew a little about everything under the sun, the classics, philosophy, history, logic, the natural, social and human sciences: they had to turn out men and women who knew more and more about less and less. But that less had tremendous social significance and was an urgent response to national development. And so our university level institutions today include Vidyapeeths and rural universities, Indian institutes of technologies and Indian institute of management, Agricultural universities and rural industrial polytechnics, Administrative and national staff colleges and technical and general teachers training colleges, institutes of development studies, demographic, urbanisation and community development centres, the emerging autonomous colleges, and a growing plethora of post secondary institutions.

Our universities have also responded, perhaps more quickly and more daringly than the other levels of education, to the exploding demand for higher education of our people. On the eve of independence we had 3.5 lakhs enrolled in our institutions of higher education: today we have 35 lakhs enrolled in these institutions. This amazing quantitative expansion over a period of two and half decades was a response to three forces. Foremost was the response to the revolution of rising expectations which free India generated in all its sons and daughters. This was the tryst with destiny that its millions had been eagerly awaiting, and they incorporated that hope in the constitutional right to education. Second was the population bulge which Independent India ushered in. As a consequence, the country has one of the highest populations in the word of university age boys and girls aged 18-22 at nine percent, which bulge is pressing on our university portals with irresistible force. Third is the democratization of education, a wind blowing through all countries and this Country, wherein those to whom the doors of higher education have been closed in the past, our scheduled castes, our backward classes, our frontier and hill areas people, in fact our poor who, in terms of the minimum needs norm constitute 70 percent of our people, are beginning to enter our universities, as first generation learners.

Finally I must refer to the moral contribution which our universities have made to our country, to its people and to the world. This moral contribution is seen in the universality of its vocation, which is the pursuit of truth: in the hall mark of its members, which is objectivity and commitment: in the methodology of its life, which is discussion and dialogue: and in the capacity of its corpus to identify error and give and take praise and blame. It is this spiritual nature of the university which provides the commonality of minds, the binding adhesive, of university men and women whenever and wherever they meet together, overriding their real differences in language, culture and rich local traditions which mark our country, and the differing and different national, economic and social systems which characterise our world. This deep moral outpouring of the university into our society is because it is the abode of youth, youth which we have been reminded, is not a time of life but a state of mind, a temper of the will, a quality of imagination, a building of character, as Gandhiji was never tired of reminding us, demanding a predominance of courage over timidity, of the appetite for unending human adventure over the sloth and ease of age, leading on to that memorable epitaph to youth: "Some men see things as they are and say, why. I dream things that never were and, say, why not."

Such is the lasting and precious heritage of our universities. Let us guard it and transmit it to our children and children's children.

Setbacks: Our stock taking must also make us see where we have failed as universities and in a sense this part of the stock taking is decisive with regard to our future perspective.

Our universities and institutions of higher education today are in deep trouble. Apart from a few isolated and declining islands of intellectual and spiritual sanity, the outward expression of this trouble is to be seen in the daily round of strikes, gheraos, mass copying, walkouts, burning of libraries, laboratories and university property, arson, stabbing and murders and violent confrontation with the police, transport workers, restaurant and shopkeepers in university towns and cities. The monthly

Bulletin of my Institute keeps a record of unrest in our educational institutions and the resulting monthly chart is dismaying. It has led on two occasions in the last two years to proposals in the highest policy making educational body of the country, the Central Advisory Board of Education, for the closing of all universities for a year, inducting the teachers and students into rural and agricultural development work, as our neighbour, China, did during its cultural revolution, and using the pause for a complete restructuration of the system of higher education. The causes for this malaise of our universities represent the setbacks in the system. They are, I believe, well known and in our more honest moments generally accepted.

There are first the exogenous causes. Our society is in the process of mutation and change and this is reflected in the university. One of the end purposes of education is employment. But as long as the economy is growing at the rate of 3 to 3.5 percent per annum—and this has been the secular trend over the last two and half decades since we began planning as an independent nation—while higher education graduation has been growing at five times that rate at 15 percent, the social end product of education is not employment but unemployment. A second exogenous factor is the unequal and inequitable society in which the university is functioning. As long as 40 percent of our people are living below the nutritional poverty line, and 70 percent below the minimum needs line, so long as 42 percent of the country's national income accrues to a minority of 20 percent of our people, and 44 percent of landed and industrial property is in the hands of 4 percent of our society, the university will continue to reflect this class bias. 80 percent of its survivors still come from the top 20 percent of society and large rural areas have no higher education facility. Delhi has 136 students per 1000 people, while Orissa has 2.2. A third exogenous factor is the volatile political profile of the country, with political parties using the staff and students in our universities to serve their non academic purposes, with all the attendant consequences of power, nepotism, corruption and intellectual and ethical discord reigning over the academic community. Today the elections to university staff associations and university and college student unions are no longer based on the unwritten contract between the academia, they have all the pomp, paraphernalia and prestige of State Assembly and Lok Sabha elections—and in some cases invested with even greater noise and significance.

The trouble in our universities and higher education institutions is also due to endogenous causes. The massive quantitative expansion of our universities has not been accompanied by the necessary reordering of the functioning of the institutions together with some provision for additional staff, buildings, laboratories, libraries and sports facilities. Higher education is no longer the 1:1 relationship, the interpersonal confrontation and mutual communication which all education is. It is in most cases a mass monologue system, and in many of our affiliated colleges a poor third rate, run down pseudo commercial mill. We have laid down for ourselves in the report of the Education Commission that the optimum student enrolment in a college should be 1500, and yet only 15 percent of our over 3000 colleges conform to this guideline.

The resulting continuous decline in standards is all pervading. It runs through teaching techniques, learning methodologies, in the quality of textbooks, in the type and content of our examination question papers and the marking of the answers, providing the inducement to cheating and circumventing the various evaluation systems that they represent. In this depressing situation, again with a few notable exceptions, the course content of what is taught and what is learnt has little relation to the academic and intellectual demands of any system of higher education and the national and development needs of our society. Our higher education products are not only unemployed, they are in a large measure unemployable, as is seen in the use of the 1973 Rs. 100 crores Union Government allocation for the employment of the 5 lakh unemployed graduates. I estimate on the basis of experience in my State and reports from others that 60 percent of this allocation has had to be used to de-school the graduates and retrain them with socially employable skills.

I am not sure that the problem that we face in higher education is essentially lack of limitation of financial resources. Before we can talk of financial constraints, we should first ask ourselves how optimally we are using our existing large resources. From this point of view, our first task is to stop the current rates of wastage and stagnation in these institutions. The University Grants Commission estimates that the failure rate at the first degree level is 50 percent: that 70 percent of postgraduate students in arts and commerce and 40 percent in postgraduate science courses are placed in the third division, which is the near equivalent to failure. This declining quality in our postgraduate education is serious, because that is the feeder to the teaching corps of our universities and higher education institutions, and the future health of these institutions.

Such are some of the external and internal maladies of our system of higher education—maladies which call for a basic restructuation both of society and the entire educational system, of which higher education is a part, along lines that have been laid downby the accepted report of the Education Commission and the guidelines set forth in our Draft Fifth Plan. For this we need the political will to act and to act quickly. Time is not on our side, because the demands on our system of higher education are daily mounting and its cup of crisis is running over.

I now turn to deal with some of these demands.

Development: The first demand that we face is that of development.

Development is holistic—it is individual and social, it is political, economic, cultural and moral, it is rural and urban, it is local, national, regional and international. It is multifaceted and myriad phased and one of our problems is that the boundary lines of our university disciplines do not coincide with or correspond to any facet of development. There are no economic problems, no sociological problems, no more than there are chemical or physical problems of development. We have problems of poverty, unemployment, water scarcity, food grains production and procurement, trade imbalance, regional backwardness, energy shortage and misuse, social discrimination, individual and class exploitation. These are the problems of development. Development so conceived calls for its diagnostic, policy formulation and programme execution, the combined skills of all our natural, human and social science as disciplines, going beyond multi-disciplinarity towards interdisciplinarity. The nurturing of multidisciplinary studies and inter-disciplinary cells is one of the urgent calls that development is making on our universities. Ultimately it will mean replacing the existing natural, human and social sciences disciplines by new specialisms which correspond to our real life.

Underdevelopment is historic. The massive heritage of poverty, hunger, undernourishment and malnutrition, the feeble agricultural industry and poor, non existent manufactures, with an undeveloped and maldeveloped infrastructure of communication, health, education, energy water use and availability, rigid and out worn but exploitative social institutions and organisations with which the country's development programme started its independence must be kept to the fore in all planning for development. The development starting point is this englobing underdevelopment which was built up gradually but relentlessly over the past 3 centuries. I have a feeling that not enough attention has been paid to this historic heritage of underdevelopment, which in part accounts for the unrealism and irrealism of our development plans. Here there is a call for the universities to trace and track in as precise a manner as possible the contours of our under development by sector, by region, by locality, by class and by group, so that a firm basis for development programming can emerge.

Development and Underdevelopment are humanistic. They of course involve measurements and models, abstractions and attempted quantifications, and quite liberal use of statistics, which I too have been indulging in. They call for separate analysis of the great problems facing us, of population, renewable and non-renewable resources, the political framework, social values and socialising institutions, peaceful living and the fight for the rights of the exploited and disinherited. But behind it all is the human person who is the cause and consequence of underdevelopment and the subject and object of all development. It is this human face which keeps peering at all of us involved in promoting development and battling underdevelopment, which is the crucible through which all must pass. In him are all the separate problems, the awesome models, the confounding statistics united. That is why development and underdevelopment call for rigorous thought and reflection about the theoretical and practical means-strategies and policies, about the specific condition of each group and every person in it—expressed in programmes and projects and about their being synthesised in man—his hopes, his aspirations, his weal and welfare. This kind of rigorous reflection on the condition of our times and the reasons for the welfare or ill fare of our people is the responsibility of the universities, and it is in the discharge of this intellectual effort, that they will, true to their calling as innovators, orginators, modifiers and transmitters of ideas, act as the pivot for the contribution to and distribution of cultural forms and directions which is Man's conscience and self expression.

Strategies: Development strategies have in the past been identified with a certain rate of growth of the Gross National Product. That was the strategy of the First United Nations Development Decade; that also was our planning strategy until we began talking about growth with social justice. In our draft Fifth Plan, we have gone further and have proposed the transfer of resources from the top decile to the bottom 3 deciles of society, as part of the poverty eradication strategy. The problem here is that, within the existing institutions, this objective of transferring resources from the top to the bottom deciles will either be defeated through inflation, tax evasion, and private profit-maximisation or will become self satisfying rhetoric, acting as a substitute for some hard decisions and action.

It is no use allowing incomes to be earned without limit, and through whatever means to be freely generated, and then expect that their disposition and ownership can be controlled. The strategy for poverty eradication calls for the creation of new institutions and organisations which can ensure an equitable distribution of the generated incomes and wealth. One such new institution is the organisation of landless agricultural labourers who form the major labour force in the Country. Another is the organisational development of a new system of rewards and incentives which would replace the hidden hand and the market system which assures to him that hath that more will be given. The savings banks for labourers started in one district, the collective ownership of land, tractor and inputs operated in some others are further instances of such small and large efforts. The development strategy for our major objective of removal of poverty is the creation of the kind of new organisations and institutions that spreads to all in the community the fruits of development, rather than the monolithic instrumentality of GNP Growth. We do not know what these institutions and organisations should be, how they are to be worked, manned and run and this is a task, in which some pilot work needs to be done, the kind of operational field work for which higher educational institutions are uniquely fitted.

A second development strategy is the emerging concept of gross domestic capital formation, which is both physical and human. So far, our treatment of capital formation has referred to physical quantities, to stocks of equipment on and with which labour works and to a fund emobodied in different forms with property rights attached to them. But a country's gross domestic capital formation must include human capital formation, which is a function of its demographic trend, its infant nutrition, health facilities and survival rate, its education and training system, its scientific and development research, its housing and drinking water provisions. It is not necessary to pursue the fruitless endeavour as to which is more important—the physical inventories or the human capital resources, or to attempt to separate and identify what is the return on each. This can be done if we had an adequate data base and more refined tools than is available under the various benefit-cost analysis systems. What is essential is to work on the cost effectiveness of the various and varying means of gross human capital formation and subsequently of its investment and use. This is a task to which the universities should address themselves, because human capital formation in our country and in the third world generally is the one strategy which faces no constraints except those which are of our own making, to which

I have made reference earlier. It is also an insistent call on the universities because they are an essential part of this process and strategy of gross capital formation.

A third facet of the development strategy is the role of science and technology which till recently was ignored in development planning. It is no accident that it was not until our Fifth Five Year Plan that the first ever Science and Technology Plan was produced and given a place in our development strategy. Till then science and technology was generally ignored by the development planner, because it came under his catch all banner of uncertainty and accident, and/or was used to explain certain limited events, such as agricultural expansion misnamed the green revolution, or the high productivity capital in some, unfortunately in a minority, of our manufacturing enterprises, or a nuclear implosion whose development use is one of our major preoccupations. The Science and Technology Plan that we have produced for the Fifth Plan is the beginning of the realisation that for us technology is no accident. It is one of the new institutions which can be used in the battle against underdevelopment and for that quantum jump which development in this country demands. But this institutionalisation of science and technology in the development process means the implantation of science as a native plant in our society, and the considered use of technology, as the means of achieving the breakthroughs which physical and social engineering call for. There is from this point of view one rather large gap in our current conception of the science and technology sub sectoral plan---and that is, that it is limited to the physical, natural, engineering and agricultural sciences and technology, leaving an aching void in the conjunctural use of the human, social and behavioural sciences and their technologies. This is one grave lacuna in our institutionalisation of science and technology, which our universities and institutions of higher education can help us fill.

There are two more aspects of development strategy to which I wish to refer. Development strategy is a means of ensuring consistency between the policies and policy instruments which make up a plan and from which programmes and projects flow. This consistency does not mean harmony between policies. The policy of import substitution of 200 MW generators, for instance, might come into conflict with the policy to arrest a production decline in the continuous process industries because they need to import standby generators, in the kind of power famine years that we have been and are passing through. In some areas again, national integration may involve local disintegration, as in the case of powerloom textiles from one state killing off the handloom weaving industry in another state of the Union. Particular policies can be in conflict with each other and it is then necessary to recognise such conflicts and use strategies based on the trade off relations between them that have to be worked out. But for this there should be a policy for each separate objective. No one policy or policy instrument can at the same time secure eradication of poverty, mass production of wage goods, expanding the quantum of exports and imrpoving our terms of trade and balance of payments. And it is the function of strategy to hold together in a consistent national frame these separate and sometimes conflicting policies. Here is an area where more light is needed—the policies required by our development objectives, their conflicts and trade off relations and the resulting strategy alternatives facing the country—an area calling for hard tiresome and objective study by the university community.

Development strategy must also come to terms with the centralising tendency of all non-socialist development planning and the functional devolution and decentralization programming which the fight against the underdevelopment imposes. Here our neighbour China is working to a strategic model under which policies are established centrally but programmes are planned and executed at the level of each commune, covering not only agricultural production of food and cash crops, but also steel and power generation, and scientific and technical research establishments. In development strategy, the core sectors should be identified. This sector will vary from country to country in accordance with its political and human resource endowments, but will also in all cases include what I have termed earlier, gross domestic capital formation. But the programming of this core sector and its execution should be the responsibility of the local functional units in a vast country like ours. Work needs to be done in our higher education establishments on identifying the core sector and in devising decentralised programming methods and execution techniques for pushing forward development and pushing back underdevelopment at the critical local points.

Our Perspectives: On this basis is it possible to look into India in the 80's and 90's?

On the demographic front, we would be very near the point of having a second India living with us, that is a second 500 million men, women and children, most of whom are already born, inhabiting this vast land. One question that arises is what kind of heritage would we of the first India leave for the second India in the political, economic, social, cultural and moral realms and how can we improve this heritage in the short time that is available to us? On this rather serious question, which is not really an essay in futurology, but a form of reflecting over the state of our coming generations, not much thinking is being done in the country and in our universities.

On the economic front, unless we develop the kind of institutions and organisations that I have referred to earlier, there will continue to be mass poverty. With our present institutions—productional and distributional—we will be ending the nineties with somewhere between 25-30 percent of our people still living below the nutritional and minimum needs poverty line. Given the demographic profile of the country at that time, the absolute numbers of the poor would be larger than those living in poverty today. If agriculture, particulary food grains production grown during the 80's and 90's at an annual average increase of 3 to 3.5 percent if the production of essential goods, cloth, edible oils, housing materials, energy, sugar increases at around 8 percent a year, and if a working distribution net work ensures that these essential goods are effectively delivered to the poor majority, then the alleviation of poverty in the country would be possible, through institutions which will regulate factor ownership, diffuse economic power and decision making, operate a new system of rewards and incentives, make impossible wasteful and conspicuous consumption and provide the social and cultural frame work for a life of simplicity and sufficiency. In effect we will be moving towards a period of sufficiency for all, on the basis of an equal sharing of poverty vis-a-vis the affluent economies.

In the political arena, one foreign prognosis is that we will lose our democratic structure, will become a military dictatorship and be embroiled in wars with our neighbours. This is a futuristic foreign fantasy, but it conveys a salutary warning to us. We have a very few years in which to develop a literate citizenry, a task to which every socialist country turns as its first priority, and to make our own the democratic values of sharing poverty, living simply and peacefully. There is here an option for us to choose from between democracy and its social, economic and political roots and some form of authoritarianism and its political, economic and cultural consequences. That choice will also be conditioned by the emerging new structure, of which the new International Economic Order being adumbrated now by the United Nations is one.

This new International Economic Order which, India joining with other third world countries decided last year to usher in, is based on the principles of justice and peace in the relations between India and other nations. The principle of justice involves reducing and ultimately eliminating the yawning and widening economic gap between India and the third world people on the one hand and the affluent people and nations on the other hand. This is not a new demand. India has been making this demand since the founding of the United Nations, which is coterminous with its own independence. The idea is new because it is the first that has been conceived by the third world for the third world and has been established as an universal responsibility by the community of nations. What gives meaning to this demand in the New International Economic Order is our recognition of the indivisibility of the concept of justice. It must and will apply internationally, that is in the relations between States, because it is being applied intra-nationally, that is in the relations between the classes of our own State. That is its ultimate sanction. The principle of peace in our relations with our near neighbours and the more distant ones is again to be based on a system of completely free and mutually reinforcing cooperation, through building and operating a new system of collective economic security, a form of independence within interdependence, which is the logical extension of the concept and operation of the system of non alignment as developed by us during the fifties and sixties.

In the field of education, there will be a renovation and real expansion in the minimum educational skills which primary education or its equivalent in out-of-school/adult education programmes represent. This will then call for diversification of our second level education system-in-school but more heavily out-of-school—and some contraction of the quantitative growth of our higher education and establishments, so that they may develop into the centres of reflection and excellence as outlined earlier. Here again there is the option facing us, which is to set our hands immediately to restructuring and renovating the system or to continue with the present system and its wastes, internal and international. Our internal wastes in the form of dropouts and pushouts, the mis and mal education, the unemployed and unemployable are slowly leading to the burning down of the whole system to the point where we may have no option. On the external wastes, we are training the medical personnel needed for some of the most affluent countries in our world and have contributed our share of scientific and computer skills for the MIRY missile and moon landing space programmes. On top of all this, we will have to devise a system which can educate twice the number of primary, secondary and university level students within the next 25 years. This cannot be done by simply doubling the number of schools and universities, libraries, laboratories and teachers. We will never have the resources for it nor the physical availabilities. There will have to be a new pattern, a new system, growing out of what is called non formal education. Let us thus make our options clear and act on them while we still have the time.

In making that option, universities have a special and unique role to play. That role begins with putting their own house in order, along lines on which there seems to be general agreement. They will then be part of a system in which their specialised, diversified and irreplaceable talent will be in constant use in the building of a just, peaceful and progressive society. The university system will then enjoy all the institutional and academic autonomy it needs, because through its planning process, it will be fully accountable to society which feeds and nourishes it, it will contribute to the enrichment of the entire educational system of the country and be the guardian and proponent of ordered and organised change which is the life blood of development.

On this basis, the cultural perspectives for the 80's and 90's are exciting. The universities will be leaders in the peaceful flowering and development of the arts—the dance, music, drama, painting and sculpture. These fine arts will be an expression of the spirit of the people, embodying in themselves the principles of truth, beauty and goodness because they are based on the grand affirmations of justice and peace. In such a society there will be no backward and forward classes, no religious, ethnic or linguistic majorities and minorities. There will be people-individuals and groups of men, women and children who are the human vision of our future.

A Call: It is on this vision of the future, of our heritage for the Second India, that I end. That vision calls for our treading now the hard political path of peace and cooperation, the stony economic road of unceasing and ceaseless toil, the soiled social lane of justice and some sacrifice particularly on the part of us the elite, and the dismaying moral route of honesty, integrity, compassion and charity. These paths must be trodden by us in pursuance of our past heritage as university men and women, in face of the call of our people for development and a life without poverty, and in the face of our obligations as devotees to truth. Let us together answer that call.

Crystal-Gazing At a Conference

An Excerpt from an Apocryphal Work entitled: Plato's Indian Republic

Freely Rendered into English

V. V. JOHN

As SOCRATES AND his companions sat in the market place, Theodorus asked, "what was the festival, Socrates, that you went to India to attend recently?"

"Lysis and I were among several foreigners invited to the celebration of the Association of India's Universities completing its first half century."

"Indians have a great flair for celebrating anniversaries, jubilees and centenaries," added Lysis. "They are ever on the look-out for such occasions, and even invent some".

"Lysis made quite a hobby of collecting Indian foibles," observed Socrates.

"Their calendar is studded with commemorations, religious, social, political and cultural," continued Lysis. "I counted three or four for every month in the year. Their seats of learning, like other establishments, stop functioning every time they feel obliged to remember a great occurrence or a great personality".

"I expect that the impatience of Lysis will diminish with age," said Socrates. "Our wanderings have taken us to lands where people worked harder and more tenaciously. But I have not noticed that unremitting diligence created fewer problems than indolence."

"I am not surprised at your taking up for the Indians, Socrates," said Lysis. "You seemed to be more happy among them than among busier people elsewhere. I remember your telling young people in one of their seats of learning that school, in the original Greek, meant leisure, and the world was in need of a reversion to this original signification."

"But, surely, Lysis, you did not think that I equated leisure with listlessness or laziness," explained Socrates. "In my view, leisure is freedom to do one's own bidding instead of another's. That sort of leisure was not plentiful in the academies I visited."

"From what I have read of them," Agathon interposed at this point, "Indians do not seem to function in a condition of leisure nor in a condition of obligatory exertion. I remember how one of the foreign envoys to their country noted, in his journal, that in India, the difference between working and not working was not always decisive."

"There was much lamentation during the jubilee celebrations over the insignificant out-turn of work in their academies," Lysis recalled.

"But there was also much resolve that things should be different in future," added Socrates. "Indians have understood well the Jewish institution of the Jubilee. You will recall that, with the Jews, every fifty years, all debts stood cancelled, all alienated property returned to the families that originally owned them. Rescued thus from his own or his forbears' improvidence, every man was given the chance for beginning anew. This idea of renewal was the approach of the academics assembled in India's capital city, as they reviewed the experience of the past and looked forward to the future."

Lysis said, "In the ninth and tenth decades of this century, they were resolved that they should make up for lost time and give new meaning and vigour to the higher learning."

"In the kingdom of the mind, which is what the higher learning is about," observed Socrates, "change could be sudden and did not have to wait upon procedures."

"How did the crystal-gazing go?" asked Theodorus. "What were the wonders that the twentyfirst century had in store?"

"We did come across simple people who talked with great awe of the century that was coming," answered Socrates. "I heard an educator solemnly asserting that the boys and girls who were now in school were being prepared for life in the twentyfirst century. All it meant was that these young people would be twentyfive years older at the end of twentyfive years. If he had put it in that matter-of-fact way, no one would have taken any notice.

"But on the whole, "continued Socrates, "Indians did not suffer from what I heard described as future shock. They have lived with astrology all these years, and what is practised as futurology in other parts of the world have no terrors for them."

"Do they really believe in astrology, Socrates?" asked Agathon. "And do they think that futuristics and futurology are the same sort of pursuit?"

"No one knows whether Indians believe in astrology," answered Socrates. "I do not think they know themselves. They do like to consult astrologers. The more eminent the person, the more regular the consultations. But I also understood that Indians were not dismayed or disconcerted when astrological forecasts turned out to be incorrect. The discomfiture of astrologers is a daily occurrence, and yet their trade flourishes. As for the new futurologists, we do not yet know how they would react to discomfiture; I expect they would be as hardy as India's planners, who seemed to thrive on disillusionment."

"Was there much futurology at this conclave of the universities?" Agathon wanted to know.

"They were all the time either looking back, or looking forward," answered Lysis. "Hardly any time was spared for the present."

"And what did they foresee for the higher learning in the country?" Agathon persisted.

Socrates said, "The prognostications were limited to the next quarter century. Many who were present at the conclave would themselves live to see whether the hopes and the forecasts came true; many would be involved in the shaping of the future."

"This must have discouraged too ambitious and utopian prophecy?" observed Theodorus.

"Some forecasts were timid," said Socrates. "They were limited to the growth of higher education in terms of the millions who would enroll as students and the hundreds of thousands who would become teachers. More would mean worse, complained many. But there were others, also talking in cliches, who claimed that there were more fish in the sea than ever came out of it. Luckily, the arguments over numbers and size did not fill all the time. Most were agreed that unless there were qualitative changes of a revolutionary order, the future was bleak."

"Revolutionary ideas have a ready market in India," said Lysis. "They are the drugs on which intellectuals thrive. The prophet who wants to de-school society finds innumerable disciples in India. If anyone proclaims that school is dead, they would readily agree. This however does not prevent them from asking for money to build a million schools. The revolution stays on the verbal level. And nothing changes."

"They told us, however," said Socrates, "that it was going to be different in the future. They were agreed that neither progress nor even further regression was possible along the lines they had been going in the last half century, and a change of course was inevitable. It was a choice of planning it or letting it happen fortuitously."

Theodorus asked, "where will they begin? With a new policy of admission, or of recruitment of teaching personnel? Or innovations in curricula and teaching ? Or new ways of assessing the work of students as well as of faculty? Or new ways of finding the money for higher education?"

"They have all the answers," said Lysis. "They have even reached the stage when they could complain, as one of their more waggish leaders did, that answers were the chief cause of problems."

"The eighties and the nineties, they anticipate, would see a more relaxed approach to the business of higher education," said Socrates. "On the question of who should go to the university, for instance, the present routine of admitting all comers and bewailing the practice would no longer prevail. It was an interesting practice, though. Selective admission to the academies of the higher learning was the ideal. No one dare practice the ideal, for fear of the wrath of those who would be refused entrance. It however suited the academics too, for they could blame the low performance of the academies on the crowding of the unworthy into their precincts."

"I hear," said Agathon, "that some American universities have found a way out of this predicament. Obliged to keep an open door to entrance in the university, they designed what has been cynically described as an academic revolving door; the result was that a large part of the trustful multitude that crowd in at the open door find themselves presently out in the street again. The academic requirements were so designed as to discourage all but the hardiest."

"After the experience of recent years," said Lysis, "Indian academics dare not try such tricks on their clientele. By the beginning of the eighties, decision-making in the universities will be such an open procedure as to leave no room for trickery. The whole community and teachers and even the parents will be involved, and they will replace the cliques that have so far been in control and made no conspicuous success of their stewardship. Among the things that the learner would learn is the art of making decisions about what he would learn, and why and how."

"Being obliged to take in all comers," said Socrates, "Indians had no opportunity of learning that a mere reduction in numbers was no way of ensuring quality. Even a few could be badly taught, and badly learnt."

"What such exclusiveness could achieve is the idea of the higher learning as a privilege," added Lysis. "That would fit nicely into the hierarchy of privileges their society was already familiar with."

"What happened to their idea of developing a few model universities and colleges, in view of the difficulty of bringing about any general improvement," asked Theodorus.

"The idea was still being debated, while we were amongst them," said Lysis. "I recall that Socrates asked them: If they set up model hospitals, what sort of patients would they take in?"

"The analogy, I must acknowledge, was not quite appropriate," interposed Socrates. "A hospital is expected to attend to those in most need of healing; it has no obligation to send forth paragons of physical vigour. But a university, besides teaching the ignorant, has also an obligation to send forth scholars of the highest quality. Speaking of models, however, Indians took some to realise that models that go beyond normal capabilities discourage instead of promoting emulation, which is what models are for."

"If they abandoned the idea of setting up models," asked Agathon, "what new pattern were they proposing in order to usher in change?"

"They have not decided to discourage the few institutions that are capable of doing work of exceptional quality," answered Socrates. "Not many agreed with the Minister of Education from one of the Indian States, who argued that, just as in a time of scarcity, everyone is expected to share the country's privations, bad education should be shared by all alike. Instead, Indians are discovering the supreme value of freedom in the field of education. There will no longer be any effort to fashion all colleges, and all universities, in the same mould. Such moulds as there were, have cracked beyond repair. The coming years will see the conversion of their campuses into places where learning facilities of various kinds are liberally provided, and all who would want to make use of the facilities would be welcome. Where learning facilities cannot be brought into the campus, students and their teachers would go out to where the facilities are available. There would no longer be anyone in authority admitting students or refusing them entrance; instead, students will admit themselves. Colleges would be like the public library system; nay, they would even be like the public roads, open to all who want to use them."

"Surely, Socrates," protested Agathon, "a university is different from a public library, and certainly different from a public road. All you need to use a public road is a pair of legs. All you need to use a public library is the capacity to read."

"And all you need at a university is the capacity to think, or the willingness to learn how," answered Socrates. "The university will have its community of dedicated scholars. But they will not be looked upon as practitioners of mystic cults. They must have something to offer the seeker of learning, and they should make it widely known what it is they have to offer. If they cannot do it, their place is not in the university. Under the new arrangement, teachers and students will consult among themselves and decide on the programmes of study they will undertake together. The programmes will be so developed as to suit individual aptitudes, and to offer the highest challenge to every student."

"If the Indian student now wants to be so challenged," observed Agathon, "he must have changed a great deal since the last reports came in."

"You are referring to the campus disorders that have been impeding the work of the universities in recent years," said Socrates. "What was impeded, was in many ways deserving of obstruction. The wonder is that rebellion has not been more frequent and more thorough. The system tied the student to a programme whose value was not evident to him, and in addition, he saw everywhere symptoms of elderly cynicism that looked upon him as a nuisance that had to be tolerated so as to enable teachers to draw their pay packets. Getting through a prescribed number of years at the university, and outwitting the final assessors somehow or other, was all that the student was expected to do. By the beginning of the present decade, the spuriousness of the whole procedure as an educational enterprise became evident even to the most stupid among its alleged beneficiaries. We were assured that this will now change."

"Can it change, so long as success in examinations is the main object of learning?" asked Agathon. "And do they not need a certificate of success in those examinations in order to secure even the meanest jobs?"

"The trouble with examinations," said Lysis, "was not that they set the pace of learning, but that they did not. As organized at present, these academic hurdles can be crossed through trickery or threats. In the coming years, however, the testing for job skills will be done by the employers themselves, and the country might even have a network of examining agencies who would test all comers for different skills and proficiencies. The universities will then be free to attend to their legitimate tasks of training the intellect, refining public taste, and extending the frontiers of knowledge."

"Teaching and learning, de-linked from general, frequent and impersonal examinations, is the liberation that universities have been waiting for," interposed Lysis. "We learnt that there were universities in the country that held examinations of one kind or another for two hundred and fifty days in the year. All their energy and attention were devoted to ensuring that these were conducted without serious mishap, and they did not always succeed in this devoted effort. All this, we were told, will now change. Teachers will teach such students as are willing to learn, and will indicate in a scroll what the student's objectives were, and what evidence of achievement he has produced. Even more significantly, the student will make a record of what learning he sought, and what he claims to have mastered."

"What happened to the job-orientation that everyone had been clamouring for?" asked Agathon.

"We learnt that those who took a narrow view of such orientation came to grief," said Socrates. "For it so happened that for too many were oriented for far too few jobs. Or, the nature of jobs changed. It took some time for the decision-makers to realise that many now in college would go into the kind of jobs that were not yet in being. The capacity to learn new things on one's own, to confront unexpected contingencies, and to be able to put learning to work, are the new capabilities that universities seek to develop."

"As for a wide range of specific jobs," added Lysis, "these would mostly be learnt on the job, and ordinarily away from the campus. The universities would consequently have on their teaching faculties many men who, in the old days, would not be so accepted. They would not be teachers all the time, but would come from various trades and professions, and would be sufficiently interested in their work as well as in the younger generation, to be keen on imparting their skills to a new generation."

"The way Indians set about promoting the higher learning needed a reversal, "observed Socrates. "What had been happening in recent years was that the State provided the lavish framework of institutions, but academics, for one reason or another, failed to fill in the significant content. The result was that they had many universities and colleges but little higher education. Under the new arrangement, persons and programmes will come first, and whatever institutional framework was necessary will come after. The promoters of higher education will be continually engaged in keeping their inventory of academic talent and resources up-to-date, and the task of governance in the university will be limited to matching the student with the learning resources that he needs".

"Would this make any serious difference in the rewards of teaching?" asked Agathon. "I recall that at the time you went to India for the jubilee celebrations, teachers were much agitated over the question of their wages."

"On the question of wages, the Indian style was to seek piecemeal solutions," said Lysis. "To use their commercial idiom, it took some time for Indians to realise that buying peace on a retail basis was the surest way to obtain trouble wholesale. Teachers in the universities were clamouring for higher wages and permanent tenancy in their jobs, whatever the quality of the work they did. As soon as this was agreed to, for the sake of peace, other employees of the State started their clamour. Finally they designed a wage policy for all on the basis of the country's resources. There was some reckoning of the average income of the Indian, and true to their reverence for teachers, they decided that all teachers should receive five times as much in wages as the average Indian's income."

"I have seen the figures of the average income," said Agathon, "and five times that income would not make anyone very affluent."

"Those in the field of the higher learning would receive even more generous treatment," said Lysis. "They would be paid much more, but not in perpetuity. The quality of their work will be adjudged periodically by themeslves, their peers, their students and the parents."

"Mere wages, high or low, will not produce dedicated teachers," observed Socrates, "but, when wages become the chief focus of attention, it is time to reckon whether the people obtain value for their money."

"The idea of everyone being accountable for what he takes from public funds," added Lysis, "is now being applied to the students too."

"How is this being arranged?" asked Agathon.

"The State," said Lysis, "lays down a basic minimum that it would spend on the education of every child until he reaches the age of eighteen. Anything that is spent above this minimum, owing to the expensive nature of the institution he attends, or the courses he takes, will be in the nature of a loan that the State gives to the learner, which he will return to the State according to his capacity, after he starts earning an income. Also, all expenses from the State exchequer on his education after he is eighteen years old, would be similarly treated as a loan, to be repaid in later years according to his capacity."

"The chief characteristic of the new order," concluded Socrates, "would be freedom. Freedom in the choice of subjects for learning, and ways of learning them. Freedom from the rigidities of hierarchy, and from schedules and prescriptions made by people not directly involved in the learning and the teaching. And the most invaluable freedom will come of repaying the bounty of the State in ample measure, and giving of one's best to the unprivileged and the unfortunate, instead of thriving on their toil."

Higher Education and Development

A. B. SHAH*

THERE ARE THREE major objectives that all educational systems share today. Briefly stated, they are:

1. to socialise the individual by making him develop roots in the tradition and attitudes of the society whose member he is;
2. to equip him with the basic information and intellectual tools that would help him find his way through the plethora of experience that life is; and
3. to train him for earning a livelihood in conformity with the norms of economic conduct accepted by the community.

What therefore distinguishes one system of education from another is, not so much the formulation of its general objectives as the spirit behind them and the environment—politico—economic, social and cultural—in which they are to be realized. These define the operational meaning of the formulations and determine whether the student will be looked upon merely as a means or also, and primarily, as an end in himself. If the spirit informing the system is liberal, the latter will seek to foster initiative, self-expression and habits of critical inquiry. If it is authoritarian, the educational process will aim at casting youth into a common mould, discourage dissent and subordinate the claims of individuality to the demands of some collectivity—state, class, religious or linguistic group.

Thus the first distinguishing feature of a system of education is the conception of human personality that underlines it. It will influence the choice of subjects to be taught, the methods to be adopted for teaching them and the attitudes to be encouraged through the educational process. More important still, it will determine the teacher-student relationship—whether it will be one of Socratic dialogue of the guru-and-disciple type. And this relationship in its turn will decide the extent to which the student will develop the ability to think for himself, to anticipate change and to adapt himself to it with intelligence and confidence.

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The environmental context determines the other characteristic features of an educational system. It is these features which give meaning to the concept of *a national* system of education. For, while the conception of man underlying it distinguishes a free from a totalitarian system of education, the environmental context suggests specific goals and the scale and orientation of the effort needed for their attainment. In order, therefore, to decide what a national system of education for India should be it is necessary to analyse in brief the context in which it will have to function.

The Indian context may best be characterized as that of a modernizing society with a mixed heritage of ideas, attitudes and institutions. Though the indigenous Indian tradition is essentially other-worldly and authoritarian, its intellectual and social foundations have been irreparably undermined during British rule. The birth of the universities and the press, and the introduction of modern forms of organisation in politics and the economy nearly a hundred years ago initiated a new tradition, distinct from the earlier one and in the earlier stages opposed to it. This new tradition is liberal and secular, attuned to the spirit of the age, and capable of supporting as well as drawing—sustenance from the forces released by freedom and the urge for a better life. That it has come to stay has been sufficiently demonstrated during the post-Independence period. Given peace, it may with reasonable confidence be expected to triumph over the older tradition and modernize Indian thought and behaviour patterns in all essential respects in the course of time.

Culturally, thus, India is midway between the developed democracies of the West and most of the new states of Asia and Africa. Economically, too, she occupies a similar position so far as enterpreneurial ability, managerial skills and technological development are concerned. However, in terms of resources and the size of her population, she is at a disadvantage. The task of bringing about rapid economic development therefore assumes in India's case a special urgency, which is further enhanced by the fact of her having a fairly large and expanding educated middle class. For, having itself experienced the twentieth-century revolution of expectations, this class is a potent carrier of its ideas to other, more numerous social groups which formerly were little more than passive, ununderstanding victims of a stunted and iniquitous economy.

A third feature of the Indian context is the linguistic, social and religious heterogeneity of the land. It is true that in times of crisis the various groups which constitute the Indian nation spontaneously subordinate parochial loyalties to larger, national interests. But such unity, like the heightened consciousness of nationhood of which it is born, is generally short-lived. In the absence of a deeply ingrained and widely shared tradition of common sufferings and achievements, the past cannot unify such people into a single nation. Nor can it be done by the present, which in spite of its being a period of transition is for most a revised and only slightly improved edition of the past. A clear vision of the better life in the future, to be progressively realized through co-operative endeavour triumphing over the divisive influences mentioned earlier, can alone accomplish the task without large-scale resort to force.

The concept of a national system of education for India may now be defined with some clarity. The system should be so designed as to fulfil the three objectives that emerge from the preceding analysis of the Indian context. They are, respectively, cultural, economic and social in nature and may be formulated as follows:

First, since India is committed to freedom, her educational system has to be consciously geared to the need of strengthening the liberal strands in her mixed tradition. This has implications both for the organisation and mode of functioning of educational institutions and for the standards of excellence they should strive to attain. That the situation is distressingly unsatisfactory is apparent to all who have watched it for any length of time from the inside. Not only is there no autonomy worth the name vis-a-vis the government, there is also very little of freedom to the teacher in matters of purely academic import. There is a dead uniformity in everything vital—content of syllabi, methods of instruction and examination, relationship between the administration and the faculty or between teachers and students, the condition of finances and even the amount of money spent on books for the library. Government institutions are, if anything, worse than private ones in many important respects. Instead of being pace-setters for others, they are generally more conservative and set themselves apart as centres of snobbery and bureaucratic incompetence.

A wisely conceived system of education ought to enjoy the maximum degree of autonomy. It should enjoy freedom from direct government control or interference and, instead of trying to impose uniformity such as is being attempted in the form of the proposed 10 + 2 + 3 pattern, should permit variety and experimentation from region to region and institution to institution. The role of the government should be confined to that of an 'operational critic' of educational institutions so that standards would be ensured without sacrifice of autonomy. Schools and colleges conducted by the government should be pioneers, not competitors, in the field, demonstrating in their mode of working a greater concern for academic values and willingness to experiment than are likely to be shown by private institutions suffering handicaps.

The concern for quality and the cultural values of democracy can be furitful only if it is reflected in the internal working of the educational system. This is far from being the case at present, for which there are two main reasons. The system we have was created by the British, who did not wish it to develop any independent strength of its own. Its structure was

0 29

therefore deliberately kept bureaucratic—in a field where bureaucratism is most incompatible with quality. Secondly, the attitude of the new rulers, especially at the State level, favours easily understandable quantitative expansion rather than the less ostentatious nursing of excellence. This is in keeping with the egalitarian urge in all fields of life—economic, social as well as cultural. However, in the absence of suitable compensatory arrangements the drive for equality is bound to lead to a drying up of the sources of the community's intellectual and spiritual strength and harm the long-term interests of those whom these leaders claim to serve. A national system of education will have to provide against such a contingency. In other words, while a majority of educational institutions may for long have to be primarily concerned with meeting the popular demand for education, a number of institutions will have to be created for the pursuit of excellence by those who are gifted for it. In the field of engineering, Government has already recognized such a need. What is necessary now is to extend the same consideration to other fields of learning and to ensure that poverty will not be a bar to a talented student.

The economic objective of a national system of education would imply a more conscious planning of educational expansion than has been the practice till now. For instance, a number of technical and professional colleges are deplorably understaffed, ill-equipped and inadequately housed. Affiliating authorities, which generally function under political and administrative pressures, are generous in granting permission to start new colleges even when they are aware that their sponsors do not have the necessary resources and personnel to run them with efficiency. Similarly, the expansion of economic activity suffers from the lack of competent persons with the specialized training and orientation necessary for optimum growth within the democratic framework. The entire national scene appears to be devoid of any co-ordinating agency despite the fact that programmes of educational as well as economic development have of necessity to be part of a more comprehensive national plan. A national system of education for India has therefore to be in close liaison with the agencies responsible for economic development. Indeed, the formulation of economic plans at each level must insist on a formulation of their personnel needs and the resources required to meet these needs. In the absence of such an insistence, no plan can claim to be realistic, however detailed its other calculations may be.

There is another dimension to the economic objective of education which needs to be emphasised here. The low priority given to education in India's plans would suggest that she has not yet, even after twenty-five years of planning, understood the role of education in promoting economic growth. If she had, the calibre of men in charge of it would have been of a different order.

The importance of education consists in the fact that economic development is as much a function of 'economic' as of 'non-economic' factors. Underdeveloped countries 'are not simply less prosperous models of wealthy nations, for there are embedded in their structure factors which make for inertia and even retrogression. Most of them constitute, or until recently constituted, strictly differentiated societies in which there was little mobility and little leavening of the old 'elite with new talent. Secondly, a strong, efficient and incorrupt administration, which is indispensable for developmental planning, is yet to grow in these countries.'

The point can be elaborated with a number of implications and illustrations. What is of interest here is, not the details but the insight that 'poverty is self-perpetuating because the poorest communities are poorest in the services which could eliminate it.' Therefore, 'the first and strategic step in an attack on poverty is to see that it is no longer self-perpetuating. This means ensuring that the investment in children from families presently afflicted is as little below normal as possible'. 'The limiting factor is not knowledge of what can be done. Overwhelmingly, it is our failure to invest in people'.

The social objective of education in India does not pose a separate problem. The heterogeneity of the Indian society presents a problem because of the absence of a strong enough will on the part of its constitutent groups to live together as members of a modern, secular democracy. The creation of such a will and the discovering of institutional forms for its expression will be possible only to the extent that the first two objectives are being realized, and therefore need not be considered separately here.

II

The foregoing considerations would be relevant even if the university system did not show the signs of breakdown which have become increasingly evident in recent years. There are few universities today which are not faced with unprecedented financial stringency, frequent student violence and teacher unrest bordering on militant trade unionism. There are a number of causes for these developments, but two would seem to be of overriding significance. The economic mess in which the country has landed itself through ill-conceived and doctrinaire policies, on the one hand, and the operation of international forces beyond its control, on the other, has made higher education in its present form a largely wasteful and irrelevant luxury. Still, some degree of sanity and purposefulness can perhaps be restored to the system provided governments and university authorities can overcome the temptation to court cheap popularity by refusing to take unpleasant decisions. This trait, which is related to the growth of populism parading in the grab of democratic socialism, is at the root of economic stagnation as well as the breakdown of the university system. If higher education is to play a creative role in the process of development, it will be necessary for the leadership in the political and educational spheres to re-examine the structure and working of the system in the light of the criteria indicated in the first part of this paper, and also to develop a sense of purpose and determination to translate the new understanding into appropriate educational reforms. What follows is a mere listing of some reforms of this kind. They can be carried out without requiring a single additional rupee beyond what the Union and State governments already spend on higher education. It may also be added that in order to give flesh and bone to the proposals, higher education in Maharashtra alone is taken into consideration.

(1) There are six universities in Maharashtra, one of them being exclusively for women. (The four agricultural universities are left out of account in this discussion.) These universities are used to functioning without any serious co-ordination from the point of view of maximising the academic gains from their limited resources. The main reason for this lack of co-ordination is the absence of a co-ordinating authority. The only authority which could have made such co-ordination possible is the University Grants Commission, which has unfortunately proved incapable of discharging its statutory obligations in a satisfactory manner. Mainly because of the large number and variety of universities and colleges it has to take into account and the absence of a firm and imaginative leadership, it has for all practical purposes been reduced to a grants-disbursing agency.

The vice-chancellors of the six universities in Maharashtra do occasionally meet to discuss common problems, but such meetings are of a routine nature and so too the problems they discuss. Nothing worthwhile has so far emerged out of them.

I would therefore suggest the setting up of a University Coordination Committee at the State level whose main functions would be (i) to co-ordinate the academic work of these universities, and (ii) to initiate experiments in different sectors of higher learning. The Committee should have the authority to determine the quantum of grants to the various universities in the light of their performance, capacity for innovation and developmental needs.

The composition of the Committee need not be very elaborate. It may have either a full-time salaried Chairman and four honorary members, or an honorary Chairman with a full-time Deputy Chairman and three honorary members. No sitting vice-chancellor or member of the Executive Council of any state university should be eligible for appointment to the Committee.

The maintenance grants should not be within the purview of the Committee's work, which should only concern itself with development and co-ordination; any grants it makes should be meant only for one of these purposes. In practice it will be found that a number of far-reaching reforms can be introduced without requiring extra funds.

(2) At present most universities of the traditional kind teach practically identical courses and undertake practically the same kind of research. In a country with great regional, variety this kind of uniformity is, on the face of it, a sign of conformist thinking. For instance, there is no reason why the universities at Bombay, Poona and Kolhapur should offer the same curricula in Economics, Political Science or History. It would be more sensible, for example, if Bombay were to specialize, say, in industrial economics and international trade, Poona in Sanskrit and medieval history, linguistics and local self-government and Shivaji in rural sociology, sugar technology and small-scale engineering.

It is only by adopting some such approach of differentiation in specialized work that universities can be truly relevant to the problems of the community on whose support and with whose goodwill they can hope to survive.

(3) Teacher-training programmes have traditionally been confined to school teachers, it being assumed as a self-evident truth that no such training is required for teaching at the university level. As a matter of fact, teaching at the university level, especially in the colleges, in a developing society needs all the more to be informed by a spirit of critical inquiry and a commitment to modern values. This would imply the need of orientation programmes for college teachers regardless of the particular subjects they teach as part of their professional work.

To give only one example of what difference such reorientation can make to teaching, one has only to think of the unscientific attitude of science teachers and the almost total ignorance of the economic features of their own region which most teachers of economics leave out of their formal teaching programmes.

In view of the growing numbers of students due both to the increase in population and the urge of social groups traditionally denied the liberating experience of higher education, public resources are going to be increasingly strained in meeting the educational needs of society in the years to come. The Centre for the Study of Social Change, Bombay, has worked out tentative estimates of these numbers and their financial implications in the year 2,000 A.D. It has also suggested some approaches which are likely to prove useful in meeting the situation. I would mention here only one approach to which we should immediately begin to give thought.

At present most of the formal education is provided in schools and colleges which are manned by full-time teachers. It is time for we began to think of offering a variety of courses which interested students of different age groups may take without formally joining school or college as full-time students. It would also be necessary to engage part-time teachers from different fields of life and devise courses which can be fitted into the leisure hours of different groups such as women, and employed or self-employed persons.

(4) Governments in underdeveloped countries have to strive to achieve two apparently incompatible objectives in the field of higher education. On the one hand, considerations of social justice deemed that higher education should be available to all those who seek it. Othrewise only the children of the elite will have access to it, thus perpetuating the inequities of social and economic disparities. At the same time, higher education has also to make a worthwnile contribution to the country's development, which it can only do by producing young men and women whose intellectual equipment and value systems are adequate to meet the challenges of development. To this end, higher education in India must attain academic standards comparable to the best in the world. Unless steps are taken to attain *both* these objectives, the result will be explosive social tensions, on the one hand, and social and economic stagnation, on the other.

Given the scarcity of material resources and the right kind of man-power for higher education, it is clear that most of our colleges will for many years continue to be sub-standard. Nor need this be a cause for unqualified despair, because even sub-standard higher education does give a sense of liberation and self-respect to students from groups which have been traditionally denied access to it by the Hindu caste system.

The other objectives can be realised through the setting up of quality institutions at each stage from the elementary to the collegiate in each region or sub-region of the State. Precautions can and *must* be taken to ensure that entry to these institutions is not monopolised by the children of the elite. Aptitude and intelligence tests which do not depend on the development of communication skills can be devised so as to identify talent from economically and culturally backward groups. Such talent should be nursed by these institutions alongwith talent from advanced groups. This will also facilitate the emergence of a new leadership from the so far deprived sections of society, which alone in the course of time can break the monopoly of the present economic and cultural elite.

(5) The examination system can be radically reformed, again, without spending a single rupee above the present level of expenditure. What has been lacking is the will to resist vested interests and initiate change. For instance, the introduction of the credit system and/or the pattern proposed by Dr. H. J. Taylor (*vide* his article in *Higher Education in India* edited by this author) can be introduced without any additional expenditure. If colleges are granted autonomy, such a reform will be all the more easy. It will also enable the university departments and the university administration to concentrate on their real tasks—namely, the maintenance of academic standards and promotion of high quality research.

(6) The present affiliating pattern is destructive of academic standards in both the affiliated colleges and the university departments. Because of

this pattern the problems of a single college or group of colleges immediately become the problems of *all* colleges and the university. Whereas it is desirable even from the 'law and order' point of view to have a system which will localize and prevent them from assuming global proportions.

The best way of doing this will be to grant autonomy to all the colleges subject to supervision and approval of the University as regards minimum standards, student participation, and conditions of service for the staff. Details can be worked out at the appropriate time.

(7) The proposal which follows is perhaps the most radical and may not be acceptable on grounds of expediency for some time to come. It raises certain fundamental issues about government's responsibility towards higher education and the way in which it can best be discharged.

I propose that the present system of grants-in-aid to colleges should be replaced by one of loan scholarships to deserving students. The size of a loan scholarship should be really generous in the sense that it should enable the student to meet all his expenses on higher education, including those on his up-keep, and relieve his parents of all financial worry in the matter.

Grants to colleges should only be made for development purposes. They should be given the freedom to raise tuition fees in order to meet their current expenses, but the university should have the authority to ensure that fees are not raised with a view to making unjustified profits for the college.

A major advantage of the system recommended here would be that it will put the students on their honour and make them and their loan-guarantors responsible for repayment of the loan amounts. This would go a long way towards discouraging populist or politically motivated agitation among students having nothing to do with their academic progress. It will also make parents take such greater interest in the day-to-day life of their wards, encourage the good colleges to strike out new paths and the ordinary ones to improve their performance.

(8) University administration needs to be decentralized substantially if individual and departmental initiative is to find free play in academic development. The guiding principle in all administration should be accountability, not the need to take prior permission of the superior authority before anything within the broad framework already accepted can be done by persons at the lower level. Such decentralization is all the more necessary in institutions where freedom to experiment and innovate are more important than anything else.

(9) Related to the need to give greater autonomy to departments and individual teachers, there is another principle whose introduction should be seriously considered. The practice of giving permanent tenure to teachers in higher education after they have successfully completed the initial period of probation leads in most cases to stagnation in the absence of a constant challenge to prove one's merit. It may be necessary to continue

the present system of permanent tenure in certain colleges where the managements are motivated more by political than by educational considerations. However, there is no justification for such a practice at the university level or even in the better colleges which have a long tradition of non-political, educationally motivated management. University statutes will have to be suitably modified so as to permit different kinds of service conditions, ranging from permanent tenure in certain colleges to periodically renewable contractual appointments in university departments. Renewal of this latter kind of appointment will be decided on the basis of sustained academic progress by the teacher and will not come as a matter of right.

(10) Most universities in Maharashtra have no provision worth the name for supporting a research and publication programme. Even when such provision is made in the budget, the meagre Funds provided under this head are rarely available except through a prolonged and frustrating procedure. Often the faculty members are asked by the university authorities to approach the Indian Council of Social Science Research for funds for research or publication. Howevrer, the ICSSR can at best offer only limited assistance and that too without the benefit of an adequate understanding of the significance of such proposals from individual teachers or departments in a country as large and heterogeneous as India.

Secondly, there is hardly any provision for a regular programme of interdisciplinary seminars at the local or inter-university level. Funds needed for such a programme would be insignificant compared to the total budgets of the universities but their role in promoting the growth of an intellectually lively atmosphere cannot be over-estimated.

Such programmes should also involve non-academicians who can both learn from and teach something to the members of the academic community.

(11) Research programmes in social sciences can be usefully reorientated in co-operation with different agencies of the government, local bodies and spokesmen of industry.

(12) University organisation in India is generally so rigid that intermigration between universities and other fields such as industry, government and the professions hardly ever takes place. In order to make the work of the universities more relevant to the problems of a developing society it is necessary to enable competent persons from outside to work in the universities for limited periods and go back to their professions. Similarly, it is also necessary to enable academicians to get out of the ivory tower for brief periods and gain first-hand experience of the working of the institutions on which their academic studies have a bearing.

(13) Traditionally, universities have kept aloof from the school system, which is looked upon by them as mainly the recruiting ground for their students. It is necessary to ensure that this isolation is broken.

Some colleges have already made a beginning by establishing contacts with the schools in their neighbourhood and making college facilities available to the schools. What is necessary is to institutionalise these stray cases of initiative and also to devise a system by which colleges and universities can play a role in levelling up the standards of school teachers and the education they provide.

Development and Underdevelopment

DURGADAS ROY*

THIS PAPER DISCUSSES some of the basic issues relating to development and underdevelopment with an interdisciplinary approach. Development economics is one of the newer branches of economics which is concerned with the problems of underdevelopment and with policy prescriptions employed or advocated to overcome it. Viewed in this light, it is essentially a branch of political economy in which political, social and institutional factors cannot be neglected. While the field is comparatively 'new', though, perhaps paradoxically, it is also one of the oldest enquiries of systematic economic thought. Interest in economic development and growth has been so 'contagious' that since World War II, the literature on this subject has reached flood proportions. In the period since the end of the War, development has become a slogan of national aspirations and efforts. The aspiration to change and institutional means for achieving it, are central to present day conceptions and ideas of development. Policy for development is a major preoccupation of the policy makers of the poor countries; help is assured by those of rich countries. Research on development and the channelling of resources like capital equipment and skilled personnel have become the functions of specially created agencies. The economists' main aim is to find ways of understanding the specific problems of economic underdevelopment. They may also discern possibilities for improving the allocation of resources.

In conventional usage development is taken as a *process*, while underdevelopment is conceived only in a static fashion as a *state*. 'Underdeveloping' is not considered as a possibility. Awareness of the 'development of underdevelopment' has been elaborately discussed by A.G. Frank in his book *Capitalism and Underdevelopment in Latin America*. According to him, it is capitalism, both world and national which produced under development in the past and which still generates underdevelopment in the present. It is wrong to suppose that economic development occurs through the same succession of stages in each country or that the underdeveloped nations today are at a stage which has been long surpassed by the developed countries. On the contrary, today's developed capitalist countries were never underdeveloped in this way, although there was a time when they were underdeveloped. Underdevelopment is in large part the historical product of relations between the underdeveloped satellite and the present developed countries. These relations were moreover, an essential part of the structure and evolution of the capitalist system on a world scale. However, Frank's ideas require considerable qualifications and elaboration in more precise theoretical and empirical terms.

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II

The development problems and policies should be understood in the broad economic sense, but within a historical perspective. Henry Bernstein in the book 'Underdevelopment and Development' has discussed the problem in this way: (a) "Development is understood in a broad economic sense. This apparent violation of the interdisciplinary commitment becomes superficial once it is stressed that social development is inseperable from economic development and secondly that the latter cannot be left to the attention of the economists alone". An adequate definition of economic development is not easy to construct. G. M. Meier has defined economic development in this way: "Economic development is not equivalent to the total development of a society—it is only a part or one dimension of general development. We usually focus on the nation-state as the unit of development, but 'national development' is a term which encompasses—at a minimum social and political development, as well as economic development, in the building of national identity. The interrelationships among these various types of development are extremely important. A major question implicit in our entire subject is how socio-cultural and political development contribute to economic development, and are in turn determined by it. It will be apparent that much more interdisciplinary study is needed to determine how economic and non-economic forces interact."

Although economic development has been defined in various ways, two definitions vie for prominence—(a) the growth of aggregate output of a country and (b) the growth in per capita income. At the outset it is worth observing that it is possible to have increases in aggregate output without at the same time enjoying any growth in per capita output. For example, if the annual rate of growth in aggregate output is 2% and the annual rate of population growth is also 2%, the economy is growing from the aggregate point of view but not from that of output per person. For some problems a knowledge of changes in aggregate output might be the only factor that is significant, while for others the per capita value might be the one that is of major importance. For example, if a country has limited foreign exchange, an increase in aggregate output may imply an equal increase in the demand for foreign exchange. With such a problem in mind, looking at development from the aggregate point of view would be the correct approach. On the other hand, if the concern is with planning for development, and the aim is to raise the standard of living of the population, then a per capita index is clearly the more relevant. In this discussion per capita output will be used as the index of development. Other indices of development have been suggested from time to time. For example, the level of per capita consumption is considered significant since it is closely related to some nations of the welfare of the mass of the population; however, this does not take into account the extent of investment taking place currently. If we consider two countries that have the same level of per capita consumption but differ in their levels of per capita investment, then it would appear that the country with the higher per capita investment is developing more rapidly than the other because it is creating capacity for greater future output. From this point of view, per capita output would appear to be the more potent concept.

It is, however, necessary to caution against equating economic development with either 'economic independence' or 'industrialization'! Professor Meier has noted "as a result of their colonial history and newly acquired political independence, many poor countries have expressed discontent with their 'dependence' on export markets and foreign capital. Such dependence is often interpreted as synonymous with foreign domination or exploitation to be avoided now by import-substitution policies and restrictions on the inflow of private foreign capital. The emphasis on national independence through inward looking policies, and the advocacy of policies to avoid foreign domination became part of an ideology that might be called the 'economics of discontent'. But the 'economics of discontent' should not be confused with the economics of development. Economic development is not to be equated with industrialization. The concentration of a large percentage of production in the primary sector is in itself not a cause of poverty; the cause is the low productivity in agriculture. Whenever the agricultural population is poor, the non-agricultural population serving the agriculture population tends to be relatively small in size and also at a low level of living. When the rural sector is prosperous, the non-rural sector tends to be large and prosperous. Progress in industrialization is highly dependent upon agricultural development. And finally economic development is much more than the simple acquisition of industries. It may be defined as nothing less than the upward movement of the entire social system". Thus the theory of economic development in its broadest form does not deal only with matters of economic analysis pure and simple. Economic analysis itself can afford an explanation of the dynamics of social change only to a limited extent. Nevertheless it is capable of describing some mechanisms of economic development.

Here it is useful to draw a distinction between economic growth and development. "Growth is a quantitative concept, involving principally the extension of an already established structure of production, whereas development suggests qualitative changes, the creation of new economic and non-economic structures" (Dowd—'Some issues of economic development and of development economics—*Journal of Economic Issues* Vol-1 No. 3) Development is taken to mean growth plus change; there are essential qualitative changes taking place in the developmental process that may be absent in the growth or expansion of an economy through a simple widening process. In advanced industrial countries, it is of course true that economic growth is by no means solely a function of the 'capital formation quotient'. New knowledge and inventions contribute markedly to the growth of national income. Similarly, a healthier and more educated labour force contributes to economic growth. If it is the case in developed countries that the growth of output is only associated with investment in physical capital, this is likely to be even more the case in underdeveloped countries. Economic development involves a change in the very structure of the economy and some argue that it involves major changes in social structure and in 'ideas' and 'beliefs'.

Development is, of course, an ambiguous and elusive word and no definition seems entirely satisfactory. If one defines development as the process by which people become better-off, which is the definition that seems to accord most closely with what instinctively springs to mind. Does one then have to discuss as being 'not development' a process in which consumption is held constant whilst the capital stock is being enlarged? It is true that total output is being enlarged by the additions to the capital stock, but for the moment no one is better off. There is always an element of gambling in capital formation, the investment may not pay off, or it may pay off only much later than anticipated. What is, however, beyond dispute is that irrespective of the outcome of an act of capital formation, something, which for want of a better word may have to be called 'development', has taken place. If that is accepted, then the simple meaning of development as a process by which people become better off will not do. It is true that there can be no simple definition of development, so that it is safest to use one which accords most closely with what most people think it means. Economic development sometimes is understood in the sense of a process which makes people in general better off by increasing their command over goods and services and by increasing the choices open to them. This is equivalent to saying that economic development means a rise in the standard of life in the not too distant future. In discussions of development it is real output and not simply the money value of output that is significant. Changes in real output reflect the changing capacity of the economy to produce goods and services, while a change in the money income may reflect nothing more than a fluctuation in the value of money. If we look at statistics of per capita output in different countries, it becomes apparent that there are enormous gaps between the per capita output of advanced countries and of developing areas. In one sense the problem of developing countries is a problem of recent history. In all ages some countries have been richer than others, but the great gaps that exist in the 20th century are larger than those of earlier countries. It is likely that in the West before the Industrial Revolution very few countries had per capita outputs that were more than three or four times that of any other country.

III

Mr. Bernstein has observed that "with regard to the meaning of the term 'Development' the perspective to be adopted must be a historical one". The use of such a perspective goes beyond the notion of 'historical background' to the theoretical comprehension of development and underdevelopment as an historical process. Economic development is a phenomenon with clearcut historical aspects. Each economy in the course of development faces a cluster of problems specific to itself, although many of them individually may be common to other contemporaneous economics. The complex of natural resources, the migratory currents, the institutional order, and the relative degree of development of the dominant contemporaneous economics singles out each historical phenomenon of development. The study of society and that of history cannot be pursued separately. The subject matter of the various branches of social science 'the economic', 'the political', 'the sociological' and 'the psychological' are inextricably related in reality. Historical social science proposed here provides an alternative basis for interdisciplinary studies. Mr. Bernstein notes further, "An evolutionary and historical social science must focus ultimately on the potential for change in particular situations even if its perspective precludes any mechanistic notion of prediction. One of its fundamental insights is that the developed societies cannot offer any final criterion of development (that is to say, historical futures for other societies) any more than the history of their emergence provides 'models' of necessary, possible or desirable change for underdeveloped countries to emulate. History does not stop with the present and in the words of Eric Wolf "every society is a battle field between its own past and its future', and today, the terms of battle, as noted, increasingly reflect forces operating in a super-national social system". Typically, inter-disciplinary social science has been analysed in terms of integrating rather than transcending the different disciplines.

IV

We now return to a meaning of the concept 'underdevelopment'. Underdevelopment is simply defined negatively in relation to development, a form of conceptualization by default expressed in such inviduous terms as backwardness, stagnation and tradition. Conception of 'underdevelopment' as a state precludes any understanding of it as a process, as a phenomenon which has itself emerged historically. Contemporary underdevelopment assumes a conception of, and an aspiration to development which in turn presupposes a world in which the confrontation of different types of society raises new possibilities of social evaluation. Mr. G. Furtado has pointed out that, 'underdevelopment must be located historically in the penetration of pre-capitalist societies by the expansion of capitalism from its countries of origin". He proposes a framework for the analysis of underdevelopment as a distinctive historical process linked to the expansion of developing capitalism. In analysing "the underdeveloped structures' he draws on the popular idea of dual economy.

The dualist analysis maintains that underdeveloped societies have a dual structure, each one of whose sectors has a dynamic of its own, largely independent of the other. The sector which is under the sway of the capitalist world has become modern and relatively developed, while the other sector is confined to an isolated, feudal or precapitalistic subsistence economy. Mr. Frank has pointed out that this thesis is quite erroneous; the dual structure is wholly illusory, since the expansion of the capitalist system during the last centuries has effectively and completely penetrated even the most apparently isolated sectors of the underdeveloped world. As G. Furtado points it, "the advent of an industrial nucleus in the 18th century Europe disrupted the world economy of the time and eventually conditioned later economic development in almost every region in the world". It is not possible of course to elaborate a whole theory of underdevelopment, but it is essential to take note of some fundamentals of the process. The first is that this process took place under a single dominant form of economic and political organisation known as mercantilism. This development was characterized by disorganization of precapitalistic artisan economy and gradual absorption at a higher level of productivity of the factors released. The second line of development of the European industrial economy consisted of displacement of frontiers wherever there was still unoccupied land with characteristics similar to those in Europe itself. A number of factors were involved in that expansion, eg. gold played a basic role in Australia and America. The third line of expansion of the European Industrial economy was towards already inhabited regions, some of which were densely populated, whose old economic system were of various, but invariably precapitalistic types. The effect of the impact of the capitalistic expansion on the archaic structures varied from region to region, being conditioned by three factors: local conditions, the type of capitalistic penetration and the intensity of penetration. The result, however, was always to create hybrid structures, partly capitalistic and partly perpetuating the features of the previously pre-capitalistic types. Thus the phenomenon of underdevelopment today, as discussed before, is precisely a matter of this type of dualistic economy. Mr. Furtado concludes, "Underdevelopment is not a necessary stage in the process of formation of the modern capitalistic economics. It is a special process due to the penetration of modern capitalistic enterprises into archaic structures. The phenomenon of underdevelopment occurs in a number of forms and in various stages. The simplest case is that of co-existence of foreign companies producing export commodities along side a wide range of subsistence activities. The co-existence may continue in a state of static equilibrium for long periods."

Thus "underdevelopment," as pointed out by Bernstein, must be located historically in the penetration of pre-capitalistic societies by the expansion of capitalism from its countries of origin". He further notes, "In this perspective the theme is a particular kind of historical development with global ramifications, moreover of a profoundly contradictory nature so that we deplore certain of its effects with the designation of 'underdevelopment', while the analysis of underdevelopment often refers to traditional social elements, the countries of the Third World cannot be regarded as 'traditional societies'. The analysis of underdevelopment must focus on the changes these societies have undergone and particularly the nature of their integration with externally generated social forces. The differential forms of underdevelopment as a continuing process require sensitive analysis which in turn bears on the consideration of development possibilities. And in this context the analysis of underdevelopment is inseparable from that of development and demand the same intensity of theoretical attention which must focus on the nature and types of 'dynamic underdevelopment biases".

Notes on Some Aspects of the Strategy of Economic Development in India

RANJIT SAU*

TWENTY SEVEN YEARS have elapsed since independence. This is not a very long period in the life of a country; nor is it too short to be dismissed lightly. At any rate, India is now at the cross-roads. The current crisis has forced upon her the need to think afresh as to which way to go from here. How far can the capitalist line take the economy, and with what results? What are the options and choices that are open to India now?

As a first step towards our main argument, we have to sum up the experiences in the recent past, and to try to understand the nature of the crisis which is currently besieging the country. Then we shall analyse the contradictions among the ruling classes of India, which will throw light on the internal dynamics of the Indian economy. Thereafter it would be easier to grasp what alternatives are, or are not, available to India to choose from.

I. THE NATURE OF THE CRISIS

As a result of efforts at planned development during the recent decades, India's industry today is far more diversified than what it was before. Despite ups and downs, the volume of production has multiplied almost threefold. These broad, quantitative indicators of advancement not withstanding, there are certain disquieting features in the course of industrialization that has taken place in India. During the first two decades of planning the growth rate of industrial production moved in a cyclical pattern; and then in the first half of the seventies industry fell in to the grip of a severe crisis. Indeed, the entire economy is in doldrums, since mid-1972 in particular.

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Industrial expansion requires two things, namely, (a) resources for investment to augment productive capacity, and (b) an expanding market to absorb the output. There are indications that on both these counts India's industry is coming up against the wall. We take up the second element, i.e., the question of market, first.

In the early fifties the rural market for industrial *consumer* goods was about three times as much as its urban counterpart. Over the years the urban market has grown faster. Even then, in 1968-69 the rural consumers absorbed more than twice the amount that was eaten up by the urban consumers. More significant is the fact that what only the richest 10 per cent of the rural population devours comes very close to what all the urban population together accounts for. The market for India's industrial goods is therefore top-heavy, and predominantly rural in character (Table 1). It should be clearly noted here that industrial goods in our definition are the products of all non-agricultural activities, including those of modern factories.

During the decades of fifties and sixties, all consumers in rural India, except the richest 10 per cent of them, had lost ground in the share of industrial consumer goods (Table 2). Should the somewhat exceptional year 1968-69 be overlooked, the same thing appears to have happened to the poorer 70 per cent of the urban population as well. The National Sample Survey (NSS) is our primary source of information. The inherent bias of NSS data to underestimate the expenditure on Consmer durables and other items consumed by the relatively affluent section is a well known fact. On the whole, therefore, it can be said that the market for industrial consumer goods in India resembles an inverted pyramid as it were, with its base continuousiy shrinking over time as the poorer people are being increasingly kept out of it.

This phenomenon of an inverted pyramid with shrinking base is poignantly brought out in another way. The proportion of the budget spent on industrial consumer goods is declining rather sharply for a large group of consumers in rural India. On an average, a consumer in 1952-53 set aside 41.19 per cent of his total expenditure for industrial goods; by 1968-69 the ratio, instead of rising, actually dwindled to 35.22 per cent (Table 3). A similar situation obtained in urban India as well (Table 4). The home market for industrial consumer goods of course is not absolutely static. It is only expanding within the confines of high walls as demarcated by the top ten per cent or so of the population. Under such circumstances the bourgeoisie in India finds it worthwhile to restrict output, hike price, and make the most out of a bunch of inelastic, affluent consumers. Strange as it may sound, less production evidently pays more. *The tendency of rising prices is an inherent characteristic of such a restricted market of industrial consumer goods.*

True, the home market for industry can in principle grow not so much on account of articles of consumption as on account of the means of production. For capitalist production therefore the growth of home market can be to a certain extent 'independent' of the rise in personal consumption. The bourgeoisie in India, however, has an uncanny knack for making a fast buck. It seeks specially those lines of production where high profits are certain, and quick to come. Durable and semi-durable consumer goods or their ancillaries are most favoured by the capitalist to engage in, their market being fairly assured and attractive. Meanwhile, the government obligingly provides the necessary infrastructure and builds up the areas where private capital would not, or could not, enter. This arrangement of convenience is nothing new; it is found even in the pages of the Bombay Plan of Tata-Birla, dated 1944. And it has been solemnized in subsequent five-year plans.

The State in India is by far the largest investor and the largest employer. Out of the total industrial investment of the Second Plan, the public sector provided a little more than one-half; during the Third Plan its share rose to nearly three fifths. As for employment in the organized activities outside agriculture, the annual average in the public sector was about 9 million, as against 6 million in the private sector during the period 1961 to 1970. In factory employment however the relative position is reversed: government factories can boast of not even one-fifth of the total. The majority of the public sector employment is in general administration, including defence. And the State disburses a huge sum on account of such employment. The total earnings of all factory workers drawing below Rs. 400 per month came to Rs. 79 crores in 1968-69, for example, whereas the wage and salary bill of the general administration of the Central Government alone amounted to Rs. 67 crores.

It has been indeed a ground arrangement; it was working well for a while. Soon something got out of hand. The Government could no longer keep the balance; it faltered. Since the mid-sixties public investment like the stone of Sisyphus began to roll down. By 1963-64 basic and capital goods industries were working at about full capacity; and as public investment in these areas dried up, the user industries, in the forward linkage of the chain, began to feel the pinch. Excess capacity arose here and there. The drought of 1965 then accentuated the tension, and soon resulted in a full-scale recession all around, except perhaps in consumer durables. The brief revival of 1969-70 came in the wake of a spurt in the demand for durable consumer goods that was stimulated by the bumper harvest. It was a short spell; the economy took a plunge once again. All along the Government had failed to sustain its level of investment. Today's industrial stagnation is the culmination of the phase of the slow down that had set in during the early sixties. State capitalism in India's industry has thus approached its boundary.

India's industry stands on a thin layer of capital and basic goods; the import content of industrial investment is as high as 66 percent. On the other hand, the market for the final products of industry is constricted by a handful, affluent fringe of the population. Public investment has now ceased to be the main stimulus for industrial growth; for it has failed to keep pace with the need of the capitalist expansion. By pumping in an enormous stream of purchasing power through its so called non-developmental expenditure, the government is only keeping up the 'third persons' with a vengeance as Luxemburg would put it. It is the wealthy consumers' demand for luxry which is the mainspring of industrial growth in India. But such a course of industrial advancement cannot go very far from the moorings of the limited supply of capital and basic goods. *Under these circumstances, industrial growth cannot be steady; it is bound to follow a cyclical path. And in the absences of adequate public investment, there may not be much of growth at all, only cyclical fluctuations.*

The picture is very much the same in agriculture too. The so called 'new agricultural technology' launched officially in 1965 was a bonanza to the rich farmers in the irrigated tracts of Punjab, Haryana, and Western U.P., in particular. It was a technology of concentrating the resources such as fertilizers, pesticides, agricultural implements, etc. in a small zone that already had assured water supply. The initial result in terms of additional output was encouraging; but the enphoria eventually gave in to disillusionment. And by 1972 it was all over; foodgrains production, instead of surging ahead, actually declined. Meanwhile, a three dimensional concentration has taken place in foodgrains: *crop-wise*, it is mainly one crop, wheat, that accounts for about half of the additional output in recent years; *regionwise*, a contiguous region of Punjab, Haryana and Western U.P. has produced the bulk of this output; and *classwise*, a small group of rich farmers have taken to the new technology with enormous advantage to themselves. This triangular monopoly so to speak, "has a built-in inflationary bias."

Just as India's industry stands on a thin support of basic and capital goods, so does its agriculture on a narrow strip of irrigated land, with the remaining four-fifths of the total cultivated area exposed to the vagaries of monsoon. Hence growth cannot be steady; cyclical fluctuations are bound to be recurring. *Merchant capital thrives in such a soil; for trade is more lucrative than production.*

The present cirsis which has seized the Indian economy is basically a manifestation of the failure of State capitalism, swamped as it is by merchant capital in a semi-feudal, semi-colonial economy. It is necessary to keep this background in mind so as to appreciate the recent trends in the strategy of development.

2. CONTRADICTIONS

The dynamics of an economy is determined by the alignment of classes in the society. In India today the correlation of class forces is in a fluid state. Chinks have appeared in the house of the ruling classes themselves.

Agricultural prices are soaring much ahead of the prices of industrial products. The deteriorating terms of trade of industrial goods apparently imply a contradiction between agriculture and industry insofar as the home market is concerned. Rising foodgrain prices indeed erode the consumer's budget, and cut into his demand for the products of industry. But one cannot be sure as to what extent the official data, being what they are, can support this preposition. For the price index does not capture the transactions in the black market that covers a large part of the exchange. Besides, merchant capital is an all enveloping pheonomenon; it holds in its grip the output of farms as well as of factories. With such a denouement, the terms of trade can reflect very little of the conflict between agriculture and industry as such.

The contradiction between industry and agriculture in India is manifested not so much in the form of a 'scissors crisis', that is, the falling relative price of industry vis-a-vis agriculture, as much as it is articulated in the shape of a contradiction between merchant capital on the one hand, and the producers in agriculture and industry on the other. It is trade that absorbs the bulk of the surplus value; trading and merchant capital has caught in its net both industry and agriculture. The sharpest confrontation is between merchant capital and productive capital; rather than between agriculture and industry as such.

If one wants to relate this conflict in terms of the corresponding classes, the picture gets somewhat more complex. One is not sure where the class of capitalist farmers ends and that of grain merchant begins. Most probably one and the same class combines in itself a dual role, without much of a Faustian conflict in its heart. It is likely that the manufacturing capitalist and the black-marketeering merchant are rolled into one fine amalgam. And in this sense arises the contradiction *between* agriculture and industry; more precisely, between the two *exploiting classes*—one based on agriculture, the other on industry. The current economic disorder is as much an outcome of this contradiction as it is its cause. The ruling classes are now riddled with an internal tussle of interests pulling each other in diverse directions.

The squabble among the exploiters for the home market is their own household affair. If merchant capital is weighing down upon agricultural and industrial capitalism, or if the class interests of the rural, agrarian bourgeoisie are situated somewhat in opposition to those of the urban, industrial bourgeoisie, no river as such is going to be set on fire. This wrangle among the ruling classes is a relatively minor contradiction; evidently it could be resolved by them with compromises among themselves, but at the cost of exploited working class. Call it fascism-cum-imperialism if you like; in any case, it is through the repression of workers and peasants at home and aggression abroad that the knot of conflicting class interests of the industrial, commercial, and agricultural bourgeoisie gets disentangled—at least for the time being.

The present economic crisis might have strained the industrial bourgeoisie which is now raising the bogey of recession. It might have tilted the balance more in favour of grain merchants rather than grain producers. All said and done, however, it would be unwarranted to expect any showdown between merchant capital and productive capital, or between the big, monopoly bourgeoisie and the medium and small bourgeoisie. In opposition to the workers and peasants, the ruling classes are as solidly united as ever. Which clearly means that the State is not likely to change its usual course of capitalist development in any significant respect. Which clearly means that if the Indian economy is in a stage of stagnation and decay, the end of it is not in sight.

There are some minor changes on the cards of course. The Draft Fifth Plan talks about growth with justice. A few years ago there was the baloon of 'New Economics', that floated only for a few moments. Palliatives would be there, galore. We need not go into them in details; we are here to discuss the fundamental strategy of development, not so much its frills.

3. A SMOKESCREEN

The big bourgeoisie and landlords know how to beat the system of official controls, quota, licenses and all that; how to twist, bend, and circumvent those regulatory measures to their own self-interest, to the utter ruin of the small and middle bourgeoisie, workers and peasants. Under their monopolist grip the market for industrial goods is receding from the ordinary consumer; the ranks of the unemployed, underemployed and starving millions are swelling. History has conclusively proved that these bourgeoi classes cannot lead the Indian economy into sustained, total growth.

And yet India presumably has a section of the bourgeoisie that claims to be dynamic, progressive and productive. Historically it has been overshadowed by the big bourgeoisie; its edges have been blunted by monopoly capital. If so, can this forward-looking group of small and medium bourgeoisie be rescued from the fetters of big bourgeois domination ? Can its energy be released from the constricting shell of merchant capital? Some experts do think that it can be done, provided the workers, peasants, and the intelligentsia join hands with the small and middle bourgeoisie, in a front against the big bourgeoisie, feudal landlords, and the imperialists. In this scheme of arrangements, the State has to *bypass* the big bourgeosie and landlords; strike a bargain with petty capitalist entrepreneurs in industry and agriculture, and unite them together in a common pursuit of economic advancement. Some call it the 'non-capitalist path', others may call it by different names. The essence of this path lies in its emphasis on the small and middle strata of the bourgeoisie as the driving force of economic development under the benevolent umbrella of a strong and growing public sector.

The economic rationale of this path, which permits a controlled development of capitalism, without its ever becoming a dominant element in the political matrix, is as follows. It is claimed that the nature of scientific progress now-a-days is such that the fruits of advanced technology can be brought even to the door of a small farm or a tiny factory. In support of this proposition many of our academic colleagues have fitted production functions with constant returns to scale. Thanks to their efforts, now small and medium enterprises also can be as efficient as their larger counterparts. On the other hand, some other observers have cited a bi-modal distribution of productivity with regard to farm size. All these findings are intended to prove that in principle the small and middle bourgeoisie as a class can combine efficiency and productivity with its dynamic outlook. It is therefore possible to visualise a pattern of development in which State capitalism—more particularly State ownership of industries in which there are economies of scale is effectively amalgamated with the interests of small producers. Along this path of development, the market would no longer remain constricted. "The petty capitalist entrepreneur is quite willing to adopt relatively modern techniques; the same is true of the capitalist farmer involved in the 'green revolution, though not to the same extent. Under the circumstances the government support of petty capitalist enterprise will raise the national level of labour productivity. boost the domestic demand for producer goods and widen the opportunities for industrial development . . . . Undoubtedly, this will be better for national economic development."

Given this brief, rather incomplete, version of the novel path which has been suggested for India by some experts, we raise the following two queries:

(1) Is there a distinct class of middle bourgeoisie in India?

(2) If so, does its present position indicate the possibility of its taking an independent, leading role in India's economic development in the near future?

These are really very big questions. Once having posed them, we can not however give up the search for an answer simply because the appropriate methodology for research has not yet been fully worked out. I know of no scientific study on these issues.

We propose to confine our analysis to industry, leaving out a sizable sphere, namely, agriculture, from our purview. As a modest beginning we assume that the middle bourgeoisie is mainly involved in the *small* private or public limited companies as per the classification of the Reserve Bank of India. A small company has a *paid-up capital* of Rs. 5 lakhs or less; in the later part of the sixties its average annual *gross profit* was of the order of Rs. 1 lakh. The categorization of the bourgeoisie is not necessarily coterminous with that of the registered companies. For a small company may be a close subsidiary of a big company whose principal beneficiary is the big bourgeoisie. Besides, a large industrial house of a bourgeois family may have under its wings a whole range of companies—large, medium and small. Nevertheless, it can presumably be said that the fortune of the middle bourgeoisie in industry is predicated upon that of small or medium companies. (The table in the Appendix gives some broad features of these companies).

We find that the rate of profit after tax in relation to net worth of small companies, both private and Public limited, is about half of that of the medium and large companies. Worse, the standard deviation of the former is higher even in absolute term (Table 5). The profit rate of medium and large companies in the worst year is about the same as that of the small companies in their best year. The data of gross profit—with respect to net sales as well as to the total capital employed—reveal a similar pattern. Small companies not only earn a smaller profit; they are exposed to more risk as well.

Let us now look at the situation from another angle. Income tax statistics as an index for the income of the assessees are as unreliable as the balance-sheet data. On a very crude reckoning the average, annual *gross profit* per small company is in the neighbourhood of Rs. 1 lakh; per medium and large private limited company Rs. 10 lakhs; and per medium and large public limited company Rs. 30 lakhs One can clearly see from table 6 that the companies with assessed income of over Rs. 5 lakhs had substantially advanced their position in ten years from 1957-58 to 1966-67—from slightly over three-fourths of the total income of all companies put togehter in 1957-58 to about nine-tenths by 1966-67. In number also they have multiplied more rapidly than any other group. All other companies, earning below Rs. 5 lakhs, had invariably lost ground; the smaller the company, the worse was the relative position of its group. This is evident enough that the smaller companies are fighting a losing battle.

These two sets of data—(1) low, volatile profit rate, and (2) declining share in the total income earned by all companies—lead us to the following conclusion. *To the extent the middle bourgeoisie in India's industry can be identified with the small companies as per the RBI classification, it is in a precarious economic situation; it is weak; and over the years its position is weakening.*

Has then the contradiction between the middle and the big bourgeoisie matured? Is the middle bourgeoisie then poised to have an alliance with the working class and the progressive petty bourgeoisie? In a word, is then the stage set for launching the strategy of economic development led by the small and medium bourgeoisie?

Let us realize that, if anything, the data of tables 5 and 6 highlight the overwhelming strength of the big bourgeoisie in Indian economy. Any scheme of bypassing or curbing the big bourgeoisie within the present socio-economic set up is utopian dream. At least on paper the Government had tried to curb their undue expansion; in effect, however, the outcome has been just the opposite.

There is yet another element in the Indian scene which is now to be taken into consideration. Eager to dispose of their vast obsolete equipment and huge surplus capital at home, foreign collaborators and investors extend a helping hand to the Indian bourgeoisie, big and small, who are ever eager to grab it. According to a careful observer, on a rough estimate, about a quarter of the firms that imported technology up to 1967 had sales under Rs. 1 crore in that year, and another two-fifths had sales between Rs. 1 crore and Rs. 5 crores. Only about a tenth of the firms recorded sales over Rs. 10 crores. If we take the number of collaboration proposals the distribution becomes more skewed towards larger firms; but even then almost two-thirds of the proposals came from firms with sales under Rs. 5 crores. These figures refer to 1967 sales; the sales would have been lower, often considerably lower, at the time the firms imported technology. Hence it is fair to say, concludes the observer, that most of the technology imports were made by firms that were small or medium even by Indian standards. In terms of the RBI classification, only large companies had sales over Rs. 10 crores in the late sixties. That is to say, *should the middle bourgeoisie be identified with small or even medium companies in India, this class accounted for an overwhelming proportion, approximately nine-tenths, of all imports of technology from abroad.* Techincal collaborations indeed are a convenient vehicle for foreign capital. Together with technical collaboration if foreign collaboration in the form of minority capital participation and through subsidiaries, with private and public limited companies, is taken into acount, the dependence of the Indian middle bourgeoisie on foreign capital turns out to be no less glaring. That is to say, *foreign capital has penetrated deep into the Indian society, well past the stratum of the big bourgeoisie. Locked in an unequal battle with the big bourgeoisie at home, the middle bourgeoisie in India is evidently leaning havily on foreign capitalists.*

Admittedly, on methodological ground there is one possible weak spot in our argument. While the majority of the companies having ties with foreign capital may belong to the small and medium group, it does not necessarily follow that they constitute the majority of that group in numbers or they even represent the group's basic characteristic *ipso facto.*

It is not inconceivable that these firms of the small and middle category which have foreign collaboration in one form or another are actually the proxies of the big bourgeoisie rather than the representative symbols of the middle bourgeoisie. While the evidence produced so far does not permit one to write off the entire middle bourgeoisie of India as dependent either on foreign capital or on the big bourgeoisie, only a full-scale and more penetrating analysis can establish the correct picture beyond any shadow of doubt. Meanwhile it is our tentative reading of the data presented above that, *first* the middle bourgeoisie in India is in an economically weak and precarious position; *secondly* that it is being pushed to the corner by the big bourgeoisie, and *finally* that the resort of some of their members to foreign capital for protection and sustenance reflects the essential character of this class in its typical response to the process of increasing differentiation of the bourgeoisie. This is however not to deny the dialectical possibility of this class, in its entirety or in part, playing a progressive role in changing circumstances.

As of now, foreign capital through its links has enveloped both the big and the middle bourgeoisie;—both of them make their common cause with foreign capital. Fissures which become visible from time to time between these two strata of the bourgeoisie are but secondary to the preponderant compulsions which unite them under the protection of foreign capital. It is therefore idle, if not worse, to dream of middle bourgeoisie in India forging a joint front with the working class against big bourgeoisie and imperialism. In that case, the strategy of development along the so-called 'non-capitalist path' in India requires considerable rethinking.

4. CONCLUDING OBSERVATIONS

The cliche of pointing out the shortfalls of planned economic development, of listing the series of broken promises, need not be repeated here. Suffice it to say that the strategy of economic development adopted so far, in spite of its record of achievements in this or that direction, cannot take the economy very far any more. Agricultural expansion of the last quarter of a century was initially due to the enhancement of the area under cultivation and subsequently due to the increase in yield as a result of the 'new technology.' These avenues are no longer open to Indian agriculture. As for industry, public sector was the principal factor in building up the base of capital goods and essential intermediate products for industrialization, while the private sector was merrily engaged in making super-profits in a 'shrinking' market of consumer goods. With the minor exceptions of co-operatives and other forms of non-capitalist institutions here and there, the State has essentially attempted to promote capitalism in industry and agriculture. After initial success, State capitalism has now reached an impasse.

The economic crisis which has overtaken India reveals certain conflicts of interests among the industrial, commercial, and agricultural bourgeoisie. But these internal quarrels among the exploiting classes are not likely to be resolved through any showdown among themselves. Theirs is a positive-sum game; they would work out some compromises among themselves, and the cost would be passed on to the shoulders of the working class.

Stagnation would continue to settle over the Indian economy for some time to come, unless the strategy of development is suitably changed. In this connection, the so-called 'non-capitalist path' has been suggested for India by some authors. Without going into its other nuances, perhaps this much can be said with certainty: it is a path where the middle and petty bourgeoisie would provide the momentum for economic growth under the benevolent umbrella of a strong public sector. We have reasons to be sceptic about its relevance in the context of India today.

It is a difficult task to ascertain the character of the middle bourgeoisie of a country like India; but it is an important task. We have to pool our resources in order to find an answer to this crucial question. Here I have made a modest beginning in that direction in the hope that it would provoke further research. It appears that the middle bourgeoisie in India's industry is economically weak; and that its relative position is fast deteriorating. But this class is responding to the challenges of increasing differentiation of the bourgeoisie by having recourse to foreign capital for its own survival. Meanwhile, the big bourgeoisie has enlarged its economic mite; any proposal to curb or bypass this class within the present socio-economic structure does not make much sense if the history of the past twenty five years is any guide at all. Under such circumstances, the 'non-capitalist path' is perhaps a mirage.

Table 1

RURAL AND URBAN CONSUMPTION IN INDIA

(Rs. Crores at current prices)

Sector	Agricultural goods		Industrial goods	
	1952-53	1968-69	1952-53	1968-69
Rural	4,305.17	10,541.31	3,106.22	5,759.74
Urban	894.31	2,738.24	1,191.36	2,482.34

Table 2

SHARE OF CONSUMPTION OF INDUSTRIAL GOODS IN INDIA

Percent

Population Fractile	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1963-64	1964-65	1965-66	1967-68	1968-69
RURAL															
0–50	23.00	20.07	18.91	19.20	20.32	20.34	20.46	22.96	19.88	19.88	22.29	21.16	20.36	22.78	21.92
50–70	17.20	16.12	15.49	16.66	15.55	15.94	16.00	16.47	15.95	16.96	17.62	16.96	15.33	16.56	16.72
70–90	25.62	28.21	27.54	28.50	26.57	27.06	27.02	26.52	26.47	30.03	28.24	28.45	25.55	27.02	23.72
90–100	34.18	35.60	38.06	35.64	37.56	36.66	36.52	34.05	37.70	33.13	31.85	33.41	38.76	33.64	37.64
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
URBAN															
0–50	19.20	18.57	17.38	18.91	16.80	18.41	20.25	19.93	16.78	18.91	18.18	18.28	16.80	17.90	20.83
50–70	16.06	15.81	15.02	16.51	14.48	15.89	16.11	15.85	13.41	15.75	15.18	14.24	15.62	14.82	15.99
70–90	27.47	28.49	27.17	28.12	25.07	25.55	26.18	27.56	23.76	26.99	27.88	25.02	30.14	28.78	31.02
90–100	37.27	37.13	40.43	36.46	43.65	40.15	37.46	36.66	46.01	38.35	38.76	42.46	37.44	38.50	32.16
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 3

PERCENTAGE OF PER CAPITA EXPENDITURE SPENT ON INDUSTRIAL GOODS

Rural India

Population Fractile	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1963-64	1964-65	1965-66	1967-68	1968-69
0-5	33.62	25.66	28.91	29.36	25.21	25.13	25.55	24.48	25.30	24.10	24.50	23.26	22.92	24.00	24.18
5-10	33.62	25.66	28.91	29.36	25.21	25.13	25.55	26.87	25.66	24.43	24.47	22.10	22.87	22.83	23.78
10-20	33.00	31.05	28.91	29.36	26.41	25.80	26.94	29.26	26.03	24.76	25.19	24.25	24.07	23.85	24.46
20-30	34.29	31.05	29.89	31.34	26.41	26.47	26.82	29.20	27.16	27.00	26.51	24.68	25.75	24.53	25.04
30-40	36.07	27.58	30.86	31.34	27.22	29.39	28.84	29.22	29.64	27.56	28.84	26.39	26.03	25.67	26.22
40-50	33.66	32.13	32.64	31.63	28.06	29.93	29.49	29.90	30.67	31.40	30.60	26.79	28.08	26.37	27.80
50-60	35.99	34.51	34.60	35.00	30.33	31.18	31.70	30.59	33.93	31.20	31.72	28.40	29.20	27.32	29.02
60-70	38.18	36.03	36.61	36.42	31.77	33.44	33.78	34.77	35.50	36.59	33.89	31.81	31.00	28.54	30.95
70-80	39.50	38.55	42.46	40.28	33.72	35.45	35.59	36.69	39.28	40.98	36.42	34.63	33.33	30.81	32.87
80-90	37.92	45.89	42.32	43.02	40.79	41.49	41.26	38.36	42.08	43.98	40.06	38.26	38.19	33.98	34.67
90-95	47.74	50.20	48.45	49.93	41.92	44.34	43.92	43.91	48.66	48.56	46.04	44.65	42.25	37.34	41.73
95-100	57.07	57.55	60.38	56.70	59.82	57.63	55.41	57.99	64.04	60.03	58.55	57.79	60.35	47.90	57.05
0-100	41.19	40.31	40.87	40.89	37.17	38.47	38.65	39.58	40.14	39.31	36.60	35.70	34.95	31.34	35.22

PERCENTAGE OF PER CAPITA CONSUMER EXPENDITURE SPENT ON INDUSTRIAL GOODS

URBAN INDIA

Table 4

Population Fractile	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	1963-64	1964-65	1965 66	1967 68	1968-69
0–5	34.36	27.49	31.44	30.06	28.41	25.13	29.55	30.51	26.31	29.45	26.59	30.03	30.14	29.08	32.95
5–10	35.33	30.49	31.44	31.96	28.90	26.65	29.80	30.06	30.29	29.57	29.60	30.16	31.82	30.67	31.39
10–20	39.65	33.48	32.21	34.06	30.47	27.93	32.16	31.62	34.14	32.93	30.07	31.30	33.91	31.51	31.86
20–30	42.42	33.54	38.14	36.16	32.52	33.25	36.96	34.60	35.88	34.97	33.97	33.24	35.57	32.55	34.52
30–40	44.63	35.39	38.22	37.91	33.47	36.29	37.56	36.55	37.86	36.50	34.86	34.18	38.14	33.53	35.04
40–50	46.51	36.68	39.87	40.02	38.04	38.95	38.87	38.53	38.79	39.39	37.52	36.90	42.15	36.60	37.02
50–60	47.01	39.38	40.00	42.92	39.00	40.82	40.98	40.95	41.49	41.70	41.15	38.21	44.77	38.24	39.60
60–70	49.63	42.12	46.27	46.47	41.80	41.90	44.09	41.86	43.21	44.70	43.27	39.51	49.28	37.14	39.78
70–80	51.28	42.07	49.12	48.95	42.99	41.73	45.78	45.43	46.84	47.85	45.10	41.98	52.65	45.20	43.19
80–90	58.54	50.14	51.20	50.39	48.53	49.19	48.39	49.54	51.05	51.76	52.63	48.81	62.18	46.96	51.86
90–95	60.32	56.20	61.88	59.49	60.99	58.93	60.00	56.69	56.58	57.34	61.58	55.00	66.91	54.65	57.80
95–100	70.00	60.37	70.00	65.00	69.73	67.06	65.00	65.00	70.00	69.18	66.78	70.00	73.25	63.67	57.80
0–100	53.53	47.10	51.56	50.56	50.00	49.35	48.68	47.50	48.97	49.73	48.36	47.25	50.72	43.90	45.15

Table 5

MEAN AND STANDARD DEVIATION OF PROFIT RATES

(Percent)

Types of companies (Ltd.)	Period	Profit after tax/Net worth	Gross profit/ Net worth	Gross profit/ Total capital employed
Small private	1963-4/1968-9	4.4 (1.8)	4.6 (0.8)	7.7 (1.2)
Small public	1956-7/1969-70	4.6 (2.4)	5.1 (0.9)	7.0 (1.1)
Medium and large private	1958-9/1970-1	9.9 (2.5)	6.9 (1.1)	10.9(0.9)
Medium and large public	1956-7/1969-70	9.2 (1.3)	9.3 (0.8)	9.4 (0.9)
Large public	1965-6/1970-1	9.9 (1.0)	10.3 (0.7)	10.0 (0.6)
Foreign controlled rupee companies	1957-8/1968-9	11.4 (1.2)	11.3 (0.9)	12.7 (0.8)
Branches of foreign companies	1957-8/1968-9	N.A.	5.6 (1.3)	7.7 (0.8)

Note: (1) Figures in brackets are standard deviations of the means.

(2) The rates of profit after tax/net worth of small private limited companies and foreign controlled rupee companies are respectively for 1963-4/1967-8 and 1960-1/1968-9. Gross profit/ total capital employed for large public limited companies relates to the period 1965-6/1968-9.

Source: Reserve Bank of India, *Bulletin.*

Table 6

SHARES OF COMPANIES' TOTAL INCOME ASSESSED FOR TAXATION

percent)

Income grade (Rs. '000)	1957-58	1959-60	1964-65	1966-67	Growth Rate Number of companies	Growth Rate Total Income
Upto 12.5	0.80 (42.97)	0.86 (44.37)	0.52 (44.87)	0.38 (37.53)	22.9	147.7
12.5–25.0	1.13 (12.41)	1.11 (12.83)	0.63 (11.89)	0.50 (10.96)	7.3	9.5
25.0–50.0	2.22 (12.26)	2.07 (12.34)	1.15 (10.83)	1.06 (11.87)	8.6	8.8
50.0-100.0	4.00 (11.06)	3.39 (10.01)	1.85 (8.88)	1.99 (11.38)	19.0	18.7
100.0–500.0	15.78 (14.14)	14.10 (13.15)	10.19 (14.77)	9.90 (17.15)	26.4	23.1
above 500.0	76.00 (7.16)	78.45 (7.2[illegible])	85.64 (8.73)	86.16 (11.07)	49.2	55.4
Total	100.00 (100.0)	100.0 (100.0)	100.0 (100.0)	100.0 (100.0)	90.9	180.8

Note; (1) Figures in brackets are percentages of the total population of companies assessed.

(2) The growth rates of companies and of total income as given in the last two columns are for the year 1966-67 relative to 1957-58.

Source: Government of India, *Statistical Abstract of India.*

NOTES

1. Our data of the market for industrial consumer goods are drawn primarily from those of National Sample Survey (NSS). NSS gives itemwise consumer expenditure for the following: (a) foodgrains, (b) milk and milk products, (c) meat, egg and fish, (d) edible oil, (e) sugar, (f) salt, (g) other food, (h) clothing, (i) fuel and light, (j) miscellaneous, (k) rent, and (l) taxes. By *industrial* goods we mean items (d) to (j), except that only certain part of item (g), namely, other food, is included under this category, the remaining of it being considered as non-industrial, that is, agricultural product. By *agricultural* goods we mean the first three items and the remainder of item (g).

   In a preliminary report, "Some Aspects of Inter-Sectoral Resource Flow", *Economic and Political Weekly* (Special Number, August 1974), we took three-fourths of item (g), namely, other food, to be industrial goods. Subsequently we found more detailed information about the components of 'other food' in 20th, 22nd and 23rd rounds of NSS.

   According to the NSS definition, 'other food' consists of pulses and products, vegetables, fruits and nuts, spices, and beverage and refreshments. This holds up to the 17th round. But in the 18th and 19th rounds some other items also have been included under this category.

   On the basis of more detailed information of the 19th, 20th, 22nd and 23rd rounds, we have now taken 20 per cent of 'other food' as industrial goods for all rural expenditure groups. For the urban expenditure groups the percentage rises from 20 per cent to 60 per cent, with 40 per cent as the average for all expenditure groups.

   For the methodology behind Tables 1-4, see the above-mentioned article, and also this author's *Indian Economic Growth: Constraints and Prospects* (Calcutta: Orient Longman, 1973), 30-31.
2. This was a matter of controversy between the Narodniks and Lenin at the turn of the century. See V.I. Lenin, "The Development of Capitalism in Russia", *Collected Works*, III, 54.
3. Ranjit Sau, "Growth and Fluctuation in the Indian Economy", *Economic and Political Weekly* (Special Number, August 1973); and "From Crisis to Confrontation: Economic Disorder and the Working Class", *Frontier*, January 4, 1975, upon which this paper draws freely at places.
4. See R.K. Hazar *Industrial Planning and Licensing Policy: Final Report*, 37
5. Rosa Luxemburg, *The Accumulation of Capital* (London, 1951); and *The* Accumulation of Capital: *Anti-Critique* (New York, 1971).
6. See Prabhat Patnaik, "On the Current Inflation in India" (mimes)
7. See Sau, "From Crisis to Confrontation", *op. cit.*

8. It is worthwhile to recall here that the real wage rate of factory workers in the organised industrial sector in recent years has been pressed down to the level as of 1939, whereas profit rates in agriculture and industry remain fairly high. If this has happened to the workers in the organised sector, the plight of the workers in unorganised sectors can be easily imagined.

9. References on this are a legion; see those cited in Ranjit Sau, "Non-Capitalist Path and All That", *Economic and Political Weekly*, April 13, 1974.

10. G. K. Shirokov Industrialisation of India (Moscow, 1973), 313.

11. According to the RBI classification, the medium and large companies have paid-up capital over Rs. 5 lakhs each. Furthermore, those with paid-up capital of Rs. 1 crore or above are called 'large companies'. There are two other categories of companies in the RBI survey, namely, branches of foreign companies and foreign controlled rupee companies, some of which also fall in the group of medium and large companies, mentioned above. There are all non-government. non-financial companies. For more details, see RBI, *Financial Statistics of Joint Stock Companies in India*, 1950-51/1962-63: and *Bulletin*, February and May 1972.

    In the late sixties the annual gross profit per medium and large private limited company was Rs. 10 lakhs; and per such public limited company was Rs. 30 lakhs; as compared to Rs. 1 lakh per small company.

    The average annual sales of large companies exceeded Rs. 10 crores, while the average for medium and large companies all together came to about Rs. 3.3 crores.

12. Ranjit Sau, "Growth and Fluctuation in the Indian Economy", *op. cit.*, 1494-95.

13. This is confirmed by similar data about 'registered firms' also.

14. National Council of Applied Economic Research, *Foreign Technology and Investment* (1971), 15-17.

15. RBI, *Bulletin*, February 1972.

16. Only 290 large public limited companies, though small in number accounted for 72 per cent of the paid-up capital of the 1501 medium and large companies referred to above. In 1966-67 the average total assets per such company was more than Rs. 10 crores. See RBI, *Bulletin*, February 1972, 219. However, let us take Rs. 5 crores of assets as the cut-off point for a large company.

    Now, the total numbers of private and public limited companies which had foreign collaboration through (a) subsidiaries, (b) minority capital participation, and (c) only technical arrangements, up to 1963-64 were respectively as follows: 224; 367; and 236. Of these the numbers of companies with total capital employed up to Rs. 5 crores as on 1963-64 were respectively 190; 329; and 208. See RBI, *Foreign Collaboration in Indian Industry* (1968), pp. 13, 42, and 70. That is to say, most of the private and public limited companies in India which have foreign collaboration in one form or anotner belong to the category of small and medium.

APPENDIX

Some Broad Features of Limited Companies Surveyed by the RBI in the Late Sixties

(Rupees)

Per company	Small: Public and Private	Medium and large: private	Medium and large: publie	Large: Public
Paid-up Capital	5 lakhs or less	Over 5 lakhs	Over 5 lakhs	1 crore or more
Annual gross profit	1 lakh	10 lakhs	30 lakhs	......
Annual gross sales	...	3.3 crores	3.3 crores	over 10 crores
Total assets	...	...	Over 10 crores	5 crores or more

Note: Paid-up capital is the RBI criterion for classification of companies. Gross profit and gross sales have been computed by us as averages. As for total assets, medium and large public limited companies had the average of over Rs. 10 crores; arbitrarily we have taken Rs. 5 crores to be the cut-off point for large public limited companies in the context of foreign collaboration; see footnote 16 above.

Crude as these figures of the last three rows are, these at best can serves benchmarks, not as any precise estimate.

Anti-Development on a World Scale

NARINDAR SINGH*

> *Thirty years have passed since the signing of the United Nations Charter launched the effort to establish a new international order. Today, that order has reached a critical turning point. Its hopes of creating a better life for the whole human family have been largely frustrated. It has proved impossible to meet the 'inner limits' of satisfying fundamental human needs. On the contrary, more people are hungry, sick, shelterless and illiterate today than when the United Nations was first set up.*
>
> —The Cocoyoc Declaration

1. Abstract

Unlike the doomsday intellectuals of the Club of Rome, I see no point in trying to peep deep into the future so as to find out if we have much time left as a species. I consider it a lot more pertinent to submit instead that our planet, a city born in desolate space and condemned to remain marooned therein forever, cannot afford the luxury of artificial, civil and military demand-stimulation. But, as is well known, that is exactly what the prevailing system needs in order merely to exist. Besides, in the very process of creating the demands it seeks to satisfy, it cannot help spawn products and technologies that could be noxious in the extreme like some of the marvels of post-War petrochemistry. They have not only done grave violence to the life-supporting ecocycles but have also disrupted the labour process itself. The intensifying crisis of ecology therefore is utterly intrinsic to the very nature of high capitalism, private or state, and must not be thought of as an avoidable aberration of human economy as such. Viewing the system as a whole, I seek to play the spotlight on the basically anarchic nature of the overdevelopment of its centre on the one hand, and

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the accentuation of the underdevelopment of its periphery on the other. My contention is that it has a built-in tendency to cause far more millions to grow into adulthood than it can possibly absorb. And this alone should force formal education among other institutions into a state of profound crisis. The conclusion seems inescapable indeed that the 'school' today is as dysfunctional an 'industry' as any that world capitalism has perfected of late.

2. INTIMATIONS OF MORTALITY

Doctor John Lightfoot, a mid-seventeenth-century Vice-Chancellor of the University of Cambridge and a great rabbinical scholar of his time, sought to demonstrate on the basis of an exhaustive study of the scriptures that 'heaven and earth, centre and circumference, were created together in the same instant, and clouds full of water,' and that 'this work took place and man was created on the twenty-third of October, 4004 B.C., at nine o'clock in the morning.[1] If memory serves, Bertrand Russell also says somewhere that not a few people found this claim to be untenable in the extreme and insisted instead that the creation had actually taken place a few months earlier. But theological certitude itself having been one of the casualties of the progress of science, such precise notions concerning the origin of *Homo sapiens* can be entertained no more and our pre-ancestors are believed now to have become us over a period ranging from 1,750,000 (+ 300,000) to some 50,000 years ago. Nevertheless, the advance of science-based technology has, of late, aroused fears about the possible termination of the human civilization itself in the near future and attempts are being made to specify the precise limits to growth determined by the terrestrial resources still left to be drawn upon. The focus has shifted from the Genesis to the Apocalypse.

But insofar as such computerized doom-watching is entirely unconcerned with the modalities of capitalism or the relatively recent intensification of the toxicity of its output, it hardly raises any substantial question at all. It would of course be a truism to say that our habitat cannot for long withstand all the strain of a remorseless destruction of exhaustible resources and an unnecessary interference with the delicately structured web of ecological cycles, ecocycles for short, that has supported life in all its myriad of forms for countless millennia in the past. Of course, to be able to function at all, human economy must be able to commend resources only some of which like air and water and soil happen to be renewable. Their renewability depends upon an elaborately repetitive process, which is powered by the incident solar energy. Of the rest, while metals can with additional energy inputs be recycled, though never completely, fossil fuels, in the very process of being used get used up also. A point often made with respect to exhaustible resources at least is that man can always keep the crisis at bay through discoveries of new materials and the development of new uses for the old ones. But this would not be true, even in principle, of renewable resources which, on account of the increasing pressure on the hitherto self-sustaining natural cycles, are also being gradually run down and for which, moreover, even potential substitutes are not available, and cannot be. Relatively localized breakdowns of such cycles have, of course, not been entirely unknown; and Lake Erie's is a classic example. But the real threat now inheres in the imminence of a magnified collapse which few countries or regions, if any, would be able to escape, if, that is, Pope's 'whatever is' continues to be treated as the best arrangement possible.

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[1] A. D. White, *A History of the Warfare of Science with Theology in Christendom*, Volume I Dover, New York, 1960, p. 256.

In any case, it would be pointless to weep over dwindling resource-availabilities in complete abstraction from the profit-motivated switch-over, particularly during the post-War period, to resource-destructive technologies and frenzied sales-promotion. Besides, a prominent constitutent of modern economic growth is the expansion of the petrochemical industry, which, in Professor Barry Commoner's phrase, has an extraordinarily 'intense degradative effect[2] on the environment, and yields remarkably low social benefits. But, as he has also emphasized elsewhere, the tendency to displace such technologies as are relatively benign from the environmental point of view cannot be studied in a politico-economic vacuum.[3] For no less important is the drive for short-term gain, which directly or at one remove involves private interests, and which dominates both the American and Soviet economic systems. In order to undertake a non-trivial analysis of the ecological crisis therefore we must perforce examine the very basis of the human economy as at present instituted. It would in other words, be pointless to talk of the 'growth' of output in complete abstraction from the nature of what is growing as also of the economy which simply cannot do without it. It is in this context that we need to question the legitimacy of the petrochemical industry which introduces, not entirely in ignorance, products which are both extremely toxic and bio-nondegradable. Detergents are a particularly noxious case. Introduced into the U.S. market in 1940, they have caused a seven-fold increase in phosphate emissions from the municipal sewerage systems during the succeeding thirty years as against an approximate doubling during the preceding thirty.[4] Fertilizers and insecticides are perhaps even more environmentally disruptive gifts of chemical technology. The reason why these and other synthetic products do such violence to the stability of the ecosphere is that they are completely invulnerable to enzymatic attack and are thus inherently bio-nondegradable. In contrast, just no organic substance is produced in nature unless there is provision also for an enzyme capable of breaking it down.[5] Recycling is thus automatic and enforced. But when a new substance is synthetized by man with a molecular structure departing significantly from the types that occur in nature, it is more likely than not that no enzyme capable of degrading it exists; so the material has a built-in tendency to *accumulate* and intrude violently into the otherwise self-sustaining ecocyclical processes. It is in this way that the life-supporting ecosphere gets gradually overwhelmed by the 'technosphere' created by the petrochemical industry that releases into the environment a large and growing variety of noxious products, such as DDT, which may even upset the oxygen balance of the biosphere. Detected in all ocean waters, it can disable the tiny marine plants, known as the green algae, that produce perhaps as much as 70 percent of the atmospheric oxygen.[6] The risk is compounded by the fact that such products as make reproduction of oxygen more difficult than before also cause more of it to be used up in their own synthesis.

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[2] Barry Commoner, 'The Environmental Impact of Chemical Technology,' (mimeographed), November 1973, p.2.

[3] Barry Commoner, *Ecology and Social Action*, University of California Press, Berkeley, 1973, p. 21.

[4] Barry Commoner, 'The Environmental Impact of Chemical Technology' P. 12.

Besides, synthetic fertilizers, organic and inorganic alike, are now known seriously to disrupt precisely those biotic processes which impart to the soil its basic fertility. This is the reason why they lose their efficacy in terms of additional agricultural output and have to be used in ever larger quantities. The damage they do to the soil thereby increases relentlessly. In the United States, for instance, 'the efficiency with which nitrogen fertilizer, made from natural gas, is converted into food and fibre has decreased by 90% since 1946; a 1400% increase in fertilizer use has yielded only a 50% increase in crop output nationwide.'[7] Evidently, the success has not been as astounding as generally believed, nor the cost so insignificant. In fact, it now seems likely that the former may turn out to be entirely transient and the latter unbearable. In other words, epidemics of a redoubled fury and collapses in crop production, world-wide, may not be very far in the future. But profits that synthetic fertilizers and 'biocides' fetch in the meantime are high enough to divert attention from the development of definitely safer and durable biological techniques, intended to secure higher yields and pest control, that at least in principle are known to be perfectible.[8] As Rachel Carson once noted, major chemical companies pour money into the universities to support research on insecticides and create attractive fellowships and staff positions. Biological-control studies, on the other hand are never so endowed—for the simple reason that they do not promise any-

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5. Barry Commoner, *The Closing Circle*, Knopf, New york. P. 44.
6. Kai Curry-Lindahe, *Conservation For Survival*, William Morrow, New York, 1972, P.33.
7. Barry Commoner, *Los Angeles Times*, December 30 1973.
8. Barbara Ward and Rene Dubos, *Only One Earth*, Penguin Book, Harmondsworth, 1972, P. 112

one the fortunes that are to be made in the chemical industry.[9] Since, moreover, the petrochemical pesticides and insecticides lack 'kill-specificity,' they destroy even the natural predators of the target pests, and as the latter develop immunity, it becomes still more difficult to keep them under control. In other words, they destroy such built-in control mechanisms as nature provides without in any way creating lasting substitutes so necessary for crop production.

But unmindful of such considerations, the oil interests keep loading the market and the environment with an endless variety of toxic products. It ought to be borne in mind, however, that their ability to do so is not due to any exceptional propensty to innovate which the petrochemical technostructure might haye been endowed with. Rather, it is the internal economic logic rooted in the preponderance of raw materials in its cost structure which impels the industry to find or create new uses for its by-products at successive stages of cracking.[10] Thus, for example, more than 75 percent of the cost of a typical petrochemical product, terephthalic acid, is accounted for by the raw material used. Virtually the only way the petrochemical industry can begin to expand therefore is by displacing older products performing basically the same functions such as washing, packing and so forth; and once the uses have been 'discovered,' it must expand further to 'satisfy' the demands created. Many a post-war economic miracle would thus seem to be due not to the magical expertise of private enterprise as such, but to the development of an industry which appeared to be serving up new products while in effect it was only creating toxic substitutes for those already in use. But such miracles now seem doomed literally to end in smoke.

In contrast, the conventional environmental wisdom focuses merely on the growing requirements of man for minerals and fuels, and thus bypasses the central problem involved. For it is not just environmental decay caused by growth as such, but concerted ecological destruction brought about by particularly noxious pursuits that we are in effect confronted with. But such destruction cannot be attenuated, much less eliminated, within the prevailing order for the simple reason that it is a most profitable pursuit from the viewpoint of corporate oligarchies. Profit, petrochemistry and pollution may indeed be taken to be the Trinity of modern capitalism.

3. ANARCHY OF OVERDEVELOPMENT

This is not to suggest that the crisis of ecology is due entirely to the expansion of the petrochemical industry. Quite to the contrary, such lunatic sums as are now being devoted to the production of arms may be no less distruptive of the environment. Margaret Mead has made the point recently in a rather prestigious establishment journal that around 30 percent of its budget that the United States pours down the military drain may well destroy the planet.[11] Mrs. Robinson also has argued to the effect that capitalism is very much in the course of making the planet uninhabitable even in peacetime.[12] But what must also be emphasized at the moment is that because of the increasing sophistication of war technology, the military budget is losing its potency as an economic stimulant. This explains why corporations seek actively to incorporate the manipulated consumer into their business strategy. He is made to keep looking for something new, something different and thus find pleasure and excitement in sheer spending as such. 'Mere' product variation served this purpose eminently well! for a while and has not by any means been given up now. But a new concept the concept of a family that has more than one unit of everything, is now being promoted to push, say, America's 'revolution in self-indulgence' into a state of fervid frenzy. With anti-drudge contraptions designed deliberately not to last, with trimmings regularly concocted to accentuate intimations of novelty, millions, in a hurry to keep 'with it' get drawn into the stores and into instalment schemes as well so that the economy might prosper. Being regularly discarded prematurely, consumer durables are durable no more. They have been replaced by durable consumers. Families not only strive to move into 'one-plane, two yacht, three-car, four-television-set' category, as E.J. Mishan puts it, but also insist on acquiring their latest models. A torrential and endless flow of solid waste—it's impossible to avoid the mixed metaphor—must needs be disposed of. Nor should we ignore the immensity of plant and equipment having to be dismantled and scrapped up prematurely in order to make way for tools that would turn out new 'models' of more or less evanescent 'consumer durables'. The scientists, on their part, are not entirely sterile of new ideas on how to handle this waste. Dr. Athelstan F. Spilhaus of the U.S. National Science Foundation, for instance, has suggested that all the scrapped cars be piled up in the Nevada desert to become a mine for posterity.[13] The forethoughtful concern for the interests of the coming generations is touching in the extreme. But they would perhaps be much better served if the world's overlying population today decided instead to be a little more careful in using the earth's resources than, of late, it has tended to be. But the compulsions of what Ronald Segal has called the 'totalitarianism of private profit' demand otherwise. What effective contribution would it make to her standard of living for an American woman to have a plurality of, say, swim suits? But the persuaders not quite hidden any more, do urge her nevertheless to use one suit for swimming, one for sunning, and one for 'psychology.'[14]

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[9] Rachel Carson, *Silent Spring*, Penguin Books, Harmondsworth, 1972, P. 225.
[10] Barry Commoner, The Environmental Impact Of Chemical Technology, P. 29.

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[11] Margaret Mead, World Population: World Responsibility, '*Science*, September 27 1974, P. 113.

[12] Joan Robinson, *Economic Heresies*, Macmilan, London, 1971, P. 143.

[13] Reported in *New Scientist*, January 14 1971, P. 60.

But since its very survival is contingent upon the adoption of high consumption as a way of life, modern capitalism must foster forced consumption as an end in itself, and the end of *that* can never be—short of disaster, of course. Some years ago the *Journal of Retailing*, for instance, made the following plea in favour of consumption *per se*:

"Our enormously productive economy...demands that we make consumption our way of life, that we convert the buying and use of goods into rituals, that we seek our spiritual satisfactions, our ego satisfactions, in consumption... We need things consumed, burned up, worn out, replaced, and discarded at an ever increasing rate."[15]

A more frenzied apologia for Philistinism as a culture-category would be hard to come by. But the question which remains unasked is whether the world, or even the United States by itself, could afford to suffer the deadly impact of consumerism thus unleashed. This appears to be the American version of the *potlatch* with some characteristic feautures of its own. One, not some tribals in a fit of competitive frenzy, but millions of common people, backed by the most potent powers of science and technology for good or evil that history has ever known, are participating in it. Its dimensions are therefore truly gigantic in contrast with the rather puny operations of the Kwakiutl. Two, it is not a mere event, albeit an elaborately prepared one, but a snowballing process, through which no individual chief seeks to affirm his hegemony or challenge another's, but a crowd of unbonded and alienated man-atoms seeks to feed its own one-dimensionality. The only finale one can visualize for such an ecologicaly disastrous revelry is the unavoidable retribution that nature must confront mankind with, and not the Americans alone, sooner rather than later. Yet, academic economists, not excluding the most pre-eminent ones, do continue to assure us that it is in the very nature of the market process to culminate not in 'chaos and anarchy' but in 'order and orderliness.[16] This is deliberately to ignore the imperative necessity of corporate capitalism to try to prevent gluts through gluttons. For as Mrs. Levitt has written, 'The corporations have mastered the techniques of manipulating our personal and social requirements in the interests of their private imperatives of survival; they can make people buy things they don't really want and produce things nobody else really needs.' In consequence, real scarcity has been replaced by 'contrived scarcity.'[17]

But a system based on contrived scarcity must of necessity drive itself towards total collapse. For intensifying auto-intoxication of this or

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14. Vance Packard, *The Waste Makers*, Penguin Books, Harmondsworth, 1971, P. 38.
15. Quoted in *ibid* P. 33.
16. Paul A. Samuelson, *Economics*, Kogakusha, Tokyo, 1973, p. 42.
17. Kary Levitt, *Silent Surrenderr*, Macmillan, Toronto, 1972, p. 29-3.0

any other sort cannot for long sustain itself. On this account alone, the irrationality of the extant order is entirely unmitigable. *Pace* Professor John Kenneth Galbraith, it is inherently incapable of organizing itself in accordance with the principles of economic planning except in the extremely banal sense, of course, that modern technology 'and the associated commitment of capital and time' oblige individual giant corporations to try to secure 'stable (sic) prices and assured demand'[18] by circumventing the market itself. But insofar as the giant corporations of today actually require a continuous introduction of seemingly new products, not all of them meant to satisfy any genuine human needs, economic planning as such simply does not and cannot exist under capitalism, and certainly not from a systemic point of view. For such planned corporate expansion would necessarily involve a destruction of the very basis of *any* economic activity at all. The pointless dynamism of modern capitalism, howsoever well-planned it might appear to be, is therefore utterly self-defeating, and is in effect the very negation of genuine economic planning. And if such a system be thought to be planned at all, it is informed by the rationality of a would-be suicide with whom self-destruction is a consuming passion. Professor Galbraith, in designating the modern industrial society *per se*, and not any institutional variant of it, as economically planned, elides the far more important fact that capitalism continues to be a system rooted in class divisions which concentrates privileges at the one end and deprivals at the other, and is thus inherently incapable of overcoming its structural infirmities and irrationalities. Corporations realize 'assured demand' and thus high profits not through planning in any significant or meaningful sense of the term at all, but through pre-empting extremely lucrative state contracts and through consumer-manipulation. Far from heralding a fundamental revolution in the nature of capitalism, as Galbraith believes it to have done, corporate power has only destroyed even such vestiges of rationality as the system might ever have had in the first place. Monopoly capitalism, as the two Pauls, Baran and Sweezy, have emphasized, continues to be as unplanned as its competitive predecessor, and the 'way the system works is still the unintended outcome of the self-regarding actions of the numerous units that compose it.'[19] But not only how it works but may actually cease to, can in fact be explained in terms precisely of such actions. Macroenvironmental disaster that it cannot put off indefinitely and microrationality of the profit-making corporations are, then, two sides of the same coin. In the meantime, of course, the GNP per capita increases inexorably and so does the 'gap' between the rich countries and poor.

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[18] John Kenneth Galbraith, *The New Industrial State*, Houghton Mifflin, Boston, 1971, p. 30.

[19] Paul A. Baran and Paul M. Sweezy, *Monopology Capital*, Monthly Review Press, New York, 1968 p. 53.

Nevertheless, the latter are advised to try to step up their growth rates as best they may and 'catch up' with the developed West. Conventional development economics, on its part, has also lent a helping hand by re-designating them as 'developing countries'. Only, evidence is mounting to the effect that whatever development has taken place has failed to trickle down at all. The signatories to the Cocoyoc Declaration have pointed out that while the richest 5 percent have been able to engross all the gain, the poorest 20 percent appear to have actually grown poorer still. They affirm therefore that:

'A growth process that benefits only the wealthiest minority and maintains or even increases the disparities between and within countries is not development. It is exploitation. And the time for starting the type of economic growth that leads to better distribution and to the satisfaction of the basic needs for all is today. We believe that thirty years of experience with the hope that rapid economic growth benefiting the few will 'trickle down' to the mass of the people has proved to be illusory. We therefore reject the idea of 'growth first, justice in the distribution of benefits later.'

In fact, if absolute primacy is not assigned to justice, we may get only intensifying injustice. In support one may cite Brazil's case. During the 1960's, its GNP per capita grew in real terms by 2.5 percent per year. 'Yet the relative share of the national income received by the poorest 40 percent of the population declined from 10 percent in 1960 to 8 percent in 1970, while the relative share of the richest 5 percent increased from 29 percent to 38 percent.'[20] It would be a cruel joke to consider such countries as 'developing' in any meaningful sense of the term. It would be much better instead to adopt Paul Sweezy's designation of them as 'underdeveloping.' For they have not just lagged behind the overdeveloped countries in terms of GNP per capita or some other index of success. If that were so they could certainly hope to scale, stage by Rostowian stage, successive heights of achievement and finally take-off into self-sustained growth. Rather, they have been forced into a state of underdevelopment, even intensifying underdevelopment, so that the overlying classes everywhere might prosper. Besides, juridical fictions apart, as long as they do not effectively opt out of the prevailing order, there is little chance for genuine development to take place, and thus for mass living standards to improve. There seems reason to believe, instead, that irrespective of what these countries might do to proceed along basically capitalist lines, rather because of such successes as they might achieve in the process, the masses concerned must remain condemned to ever deteriorating standares of living. It would be much better therefore to view world capitalism as an ongoing and unified process which spreads its benefits, for what they are worth, very unevenly indeed, and of which, moreover, overdevelopment and underdevelopment are two thoroughly integrated and mutually supporting sub-processes. However, the received development theory refuses to see the system as a whole and proceeds from the presumption that the deficiencies the periphery suffers from are basically remediable within the prevailing order. But, this would be impossible just because, if for no other reason, it is made in effect to finance within its own geographical frontiers, the accumulation of the metropolitan assets, and to remit massive dividends as well. On the basis of comprehensive data covering British and U.S. investments abroad during 1870-1913 and 1950-63 respectively, Paul Sweezy was almost tempted once to formulate a veritable economic law to the effect that 'over any significant period of time the inflow from foreign investment will exceed the outflow of capital by 70 per cent.'[21] It is, of course, the excess as such of income accruing to the metropolis over the outflow of capital, and not the precise percentage, which is central to our argument. Which is that it would be impossible to sustain metropolitan prosperity without a massive and mounting appropriation of resources generated in underdeveloped countries through direct investments therein.

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[20] Irma Adelmn and Cynthia Tafi. Morris, *Economic Growth and Social Equity in Develoving Countries*, Stanford University Press, Stanford, 1973, p.1.

This does not take note of what Samir Amin has recently described as 'hidden transfers of value from the periphery to the centre.' His point is that if the rewards of labour were equal to what they are at the centre, *with equal productivity*, the exports of the periphery now valued at around £35 billion would be worth £57 billion. Thus the mechanism of unequal exchange enables the centre quietly to appropriate £22 billion every year-twice the amount of aid it gives magnanimously. And the amount which doesn't figure anywhere, too is around 15 percent of the periphery's 'national product.'

This is far from negligible in relative terms, and is alone sufficient to account for the blocking of the growth of the periphery and the increasing gap between it and the centre. The contribution that this transfer constitutes is not negligible, either, seen from the standpoint of the centre which benefits from it, since it comes to be about 1.5 percent of the centre's product. This is not the main thing, however, from the standpoint of the centre: what matters is that this transfer is vital for the giant firms that are its direct beneficiaries.'[22]

The misconception of the world economy, then, as an endless and entirely friendly olympiad in which 'nation-athletes' are taking part to win honours in terms of GNP per capita, with the stronger ones, in order simply to be caught up,' 'are always eager to give 'aid' to the waker, is nothing but part of the ideological mish-mash which the economics profession has of late been mass-producing.

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[21] Paul M. Sweezy, 'The Future of Capitalism,' in David Cooper ed., *The Dialectics of Liberation*, Penguin Books, Harmondsworth, 1971, p. 105.

[22] Samir Amin, *Accumulation on a World Scale*, Monthly Review Press, New York, 1974, p. 59.

5. DISRUPTION OF THE LABOUR PROCESS

But basic to a comprehension of the *world* economy today is to realize the employment-disrupting power of modern technology in rich and poor countries alike. Indeed, Keynes himself spoke once of a 'new disease' called technological unemployment which he attributed to 'our discovery of means of economising the use of labour outrunning the pace at which we can find new uses for labour.' But he thought of it as no more than 'a temporary phase of maladjustment' so that in the long run mankind would definitely solve its economic problem.[23] To him, moreover, the 'economic problem' seems to have meant nothing but an obligation to work. Without going into the utter untenability of such a view, I wish to submit that since he wrote it about forty years ago, 'progress' in technology has brought about an *irreversible* displacement of labour. This could hardly be otherwise. For example, £500 million spent on R & D alone by Pilkington could help create a sheet glass plant designed to employ no more than 36 people. It is easy to perceive the emergence of what Paul Sweezy has called a 'new leisure class.' In the circumstances, it is not just relative poverty which increases but absolute, and as Mrs. Robinson has affirmed.

Growth requires technical progress and technical progress alters the composition of the labour force, making more places for educated workers and fewer for uneducated, but opportunities to acquire qualifications are kept (with a few exceptions for exceptional talents) for those families who have them already. As growth goes on at the top more and more families are thrown out at the bottom. Absolute misery grows while wealth increases. The old slogan 'poverty in the midst of plenty' takes on a new meaning.[24]

Since about 65 percent of the total capital investment in the developed capitalist countries is these days devoted to greater technological efficiency and only about 35 percent to additional capacity creation upon which employment ultimately depends,[25] a massive displacement of labour is really unavoidable, even in the long run. More specifically, insofar as it is the displacement of *highly skilled* labour, it represents a waste of resources which we could hardly afford to ignore. Besides, a system which cannot help

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[23] John Maynard Keynes, Essays in Persuasion, Rupert Hart Davis, London. 1952 p. 364.

[24] John Robinson, *Selected Economic Writings*, Oxford University Press, Bombay, 1974. p. 245.

[25] Charles Levinson, Capital, *Inflation and the Multinationals* Allen & Unwin, London, 1971, p. 51.

'disemploying' those with high skills cannot but reject those without any and who are found in the main in the periphery. Professor Bettelheim made the point recently that in a strict, technical sense of the term, employed workers in the developed capitalist countries are, on account of the higher intensity of their work, subject to a greater degree of exploitation than workers in the poor countries. Be that as it may, a far more important question which the world faces *today* is an altogether different kind of exploitation which whole masses of men have to suffer in the form of sheer denial of opportunity on account of the adoption of a *technology of exclusion* which is counter-ecological in addition. These masses of men, victims of chronic deprivation, do *not* constitute an industrial *reserve* army, fluctuations in the size of which, as Marx pointed out, are of a cyclical nature and which the system needs to compel those actually employed to accept its discipline. Instead, the 'swamp of pauperism' to which were drawn during the nineteenth century, as he saw it, only the 'lazarus-layers' of the British working class, now entraps a large and *growing* proportion of *the entire human race.* In other words, what in Marx's day was no more than the 'lowest sediment' of 'supernumeraries' in a small island, appears in the present as the only too visible mountains of silt of hapless men in large sectors of the globe which are progressively underdeveloping.

And surprising though it may seem, petrochemical industry is the crucial link between affluence and effluence on the one hand, and mass poverty on the other. For while it has caused many an economic miracle of the post-War era, it has also effected astounding, albeit potentially self-defeating, successes in death control. Thanks to their constantly swelling ranks therefore the victims of deprival in the Third World could never hope to be absorbed into the mainstream of economic opportunity for as long as the current profit-determined emphasis on technological sophistication is not reversed. Ironically, indeed, they owe their very existence to a technology which has also slammed the door of opportunity on them. To adapt a point Paul Sweezy made in another context recently,[26] it would be the worst form of economism to think of such technology as a force of production. Rather, insofar as it does not assign any importance, much less primacy, to human beings but actually dehumanizes them into a state of morbid idleness, it is not just 'dead matter' but an active force of destruction, for the world as a whole, and can have little but disastrous consequences for the race. One would therefore need to go *beyond* what Paul Sweezy and Harry Magdoff designated sometime ago as the 'double dialectic of centre/periphery and development/underdevelopment,'[27] which shows only though inexorably, that the day of independent capitalist development in the Third World is past, but not that the system *as a whole* is facing an irreversible crisis of self-strangulation. From this neither its periphery nor centre could in any way be exempt.

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[26] Paul M. Sweezy, 'The Nature of Soviet Society,' *Monthly Review,* November 1974, p.4n.

[27] Paul M. Sweezy and Harry Magdoff, 'Twenty-five Eventful Years,' *Monthly Review,* June, 1974, p.6.

6. THE IRRELEVANCE OF FORMAL EDUCATION

It is the evident severity of this crisis which has thrown many of the sacred cows of the system, the 'school' in particular, into a state of complete dysfunction. I make a specific mention of formal education not merely because it is a major concern of this Seminar, but essentially because a massive exercise in non-formal education is needed to ensure our survival as a species. It is not surprising in the least, for example, that Ivan Illich's *Deschooling Society* had to be a denunciation both of formal education *and* of the culture of high consumption. The two really belong together and the one is as much an incubus on world society as the other. The essential trouble with contemporary education is that it is designed to dispense little but the know-how intended to serve the requirements of an inegalitarian society. With contrived obsolescence virtually built-into high capitalism and ever differentiating skills required for the purpose, it is an outrageously costly venture. The 'economics of education' is indeed a contradiction in terms insofar as the school is so completely counter-productive. Far more important than the quality of know-*how* therefore is the nature of the know-*what*. Evidently, the school itself cannot raise such questions. It is for its negation to ask, for example,

> What is the necessary business of the schools? To create eager consumers? To transmit the dead ideas, values, metaphors, and (outdated) information? To create smoothly functioning bureaucrats? *These* aims are truly subversive since they undermine our chances of surviving as a viable, democratic society. And they do their work in the name of convention and standard practice. We would like to see the schools go into the anti-entropy business. Now, that is subversive, too. But the purpose is to subvert attitudes, beliefs and assumptions that foster chaos and uselessness.[28]

The central concern of education as a humane pursuit, in other words, must never be the development and transmission of skills which are now known to be subverting the very basis of human existence but, as Paulo Freire has pharased it, 'conscientization.' This means learning 'to perceive social, political, and economic contradictions, and to take action against the oppressive elements of reality.'[29] It would certainly be a difficult undertaking, but given man's capacity for self-orientation, not impossible.

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[28] Neil Postman and Charles Weingartner, *Teaching as a Subversive Activity*, Penguin Books, Harmondsworth, 1973. p.27. Emphasis in the original.

[29] Paulo Freire *Podagogy of the Oppressed*, Penguin Books, Harmondsworth. 1972, p. 15.

One would really not do anything at all, as Simone de Beauvoir has written, 'if one thought that nothing is possible except that which exists already.'[30] In sum, man must seek, as Marcuse has demanded, liberation from affluence and the *kind* of industries which sustain it. This alone would ensure the continuation of his civilization. For the first time in history then would he be substantively free; free in fact of the very compulsion to be a slave, or a slave-driver.

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[30] Quoted in Paul A. Baran *The Political Economy of Growth*, Peuguin Books Harmondsworth 1973. p.28.

Transfer of Technology, Development and Underdevelopment

P. V. INDIRESAN*

AT THE MACROSCOPIC level of planning for development, the contribution of intellectuals in general, and that of universities in particular, has been extensive. On the other hand, at the microscopic level of implementation, their contribution is none too impressive. While the philosophy of development and underdevelopment provides wide open vistas for intellectual endeavour, has a freshness at every turn and is fascinating in every direction, at the mundane working level of production, the effort is often constrictive, dirty and downright boring. Unfortunately, in the final resort, somebody has to produce the goods that society considers necessary for development and obviously, the universities have to participate at this level also. One particular aspect, which is causing grave concern and on which the universities have a direct bearing is the problem of transfer of technology and this note is concerned with this particular problem.

A developing society should obviously profit by the experience of the developed societies. Specifically, in the manufacturing aspect, it is necessary that one does not invent what has already been invented before; that whatever is invented is put into production; that basic scientific knowledge is so disseminated that inventive ideas result. All this implies a transfer of technology across political frontiers from developed to underdeveloped societies and even between two developed societies, and within a given society, from the scientist to the engineer and from engineer to the producer.

Transfer of technology assumes three forms:

(*a*) Material transfer
(*b*) Design transfer
(*c*) Capacity transfer

Material transfer refers to the actual purchase of equipment. Design transfer is what Japan specialised during the inter-war years and in the immediate post-war period. The capacity transfer takes place at the highest level in the sense that what is involved here is the thinking process for new tools and instruments that did not even exist before.

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Material transfer requires nothing more than money and craftsmen; design transfer requires skilled craftsmen and production engineers. But capacity transfer needs the highest level of scientists and research engineers. Thus, the universities are concerned with the latter two types of transfer only.

Particularly in India, transfer of technology is a big business; R and D Organizations alone spend over Rs. 150 crores a year on this process. Much of this, unfortunately has not been as productive as one would wish to be. The problem has been the transfer of ideas from the university scientist to the research engineer at the professional R and D laboratories and from the research engineer to the production engineer in the manufacturing industries. The problem is not merely technical; it is also social, psychological and economic and a fruitful field for investigation indeed for the social scientist.

One major problem has been a new extension of the old caste system which sharply differentiated and isolated the thinking brahmin from the working sudra. We have now a similar total isolation from the 'thinking' university intellectual and the 'working' production level operative. The problem of bringing the two communities has been considered so hopeless, that it is now seriously felt that the only way to transfer technology is to transfer the man himself. In effect, this means that the scientist in due course of time should perform the engineering design himself and finally get on to the production bench to get the material produced. This cannot be an optimum solution; in fact this process evades rather than solves the problem.

The universities have not concerned themselves with this problem at all except in a desultory manner with a related effect, namely, the reverse transfer of capacity through brain drain. Apparently we have learnt how to train the young, how to think but not how to work. So, they go elsewhere where they can think for those who can work or work for those who can think.

This in brief: A developing society needs technology transfer; this transfer has to take place across national boundaries and also within a national boundary; in the latter case, a dialogue has to exist among the scientists, research engineers and production engineers; the capacity for such a dialogue is one of the measures of development; this capacity can be built up not by scientists and engineers by themselves because the problem is historical, social, psychological and economic. Thus, this is a problem an entire university can and should tackle.

Higher Education and National Development

J. N. KAPUR*

IN ORDER TO discuss the strategy of educational development and the role of education in national development, one has to consider the issues and dilemmas that baffle us in the field of higher education.

CONTRADICTIONS IN THE PRESENT HIGHER EDUCATION SYSTEM:

(i) We want highest possible standards for our colleges and universities while the resources at their disposal are relatively limited. We spend on an average Rs. 600 per annum on the education of a college student while the average in the developed countries may be Rs. 10,000 to Rs. 15,000 per annum. Achievement of international standards by a majority of our institutions is obviously impossible under these conditions. However wherever the expenditures are comparable, as in I.I.T.'s and agricultural universities, international standards have been reached.

(ii) Most of our educational institutions are : foreign models of 80-100 years ago; yet we expect them to be relevant to our country today.

(iii) We want academic excellence, yet we will not make selective admissions limited by the resources of the colleges and universities. In most institutions, enrolments have gone up three or four times without significant increase in resources. Real resources per student go on decreasing from year to year and yet we decry the fall in standards.

(iv) We want to be just to scheduled caste and scheduled tribe students. We admit them to higher education institutions whether they have aptitude for higher learning or not, but we do nothing else to help them either before or after getting admission. They are left to their own devices, become frustrated and even drop out of the system.

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(v) We know that more than fifty percent of our students study in substandard institutions. These were started for political reasons. We do not want to close them. At the same time we do nothing to improve them and yet we lament when we find that students coming out of these institutions are not upto the mark.

(vi) We criticize our higher educational system from hundreds of public platforms and yet when commissions make recommendations for improving it, we shelve them.

(vii) We tell our students and teachers that the education they receive and give is useless and yet we expect them to be dedicated students and teachers.

(viii) Most of our colleges do not have any play-fields and have little funds for sports, yet we are surprised when our colleges do not produce sportsmen of high calibre.

(ix) Most of the libraries are ill-equipped and even if they have books, these are mostly in English which many undergraduate students do not understand. Number of good books in regional languages is strictly limited and even they are very often not available in libraries. Programmes of production of university level books in regional languages have not made much headway.

(x) Students, parents, educators, government all know that there are not enough jobs for university educated people. Yet students come to the university to climb up the social ladder and to increase their chances in the competition for the limited number of jobs available. Those who fail in this competition and their number is large, get frustrated and blame the system. They cannot even go back to their earlier environment because they got up-rooted from it in the process of receiving education.

(xi) For most students, a college is only a waiting room and not a place for education. By calling a waiting room a college, one may gain in shallow prestige, but one does not become better prepared to face life.

(xii) There is a widespread belief that higher education is for training for higher jobs. If it is true, then we must train as many persons as there are higher jobs and we should have training institutions specifically for certain jobs. There can be strict manpower planning and restricted admissions to these training institutions. However we want to cling to this belief and yet are not prepared for restricted admissions.

(xiii) There is another belief that restricted admissions will favour the privileged sections. The truth may be just the other way. If admissions are really restricted, quotas can be fixed for all sections of society and representation of weaker sections in higher education can be increased.

(xiv) There is still another belief deliberately spread by the privileged sections viz; that open door admission policy means equal opportunity for all. Equal access does not mean equal opportunity; only a positive bias in favour of the weaker sections can bring about equal opportunity.

(xv) Today about twenty percent of higher education may be for specific jobs. There is a demand that all higher education must be job-oriented. This would mean either restricted admissions or frustration among those so trained at the cost of general education. We ask for job-oriented education and shut eyes to its possible consequences.

(xvi) We examine students mainly for memory so that they can succeed by memorising certain facts. Most of the examination work is done through regional languages. However jobs are given on the basis of interviews which are usually conducted in English language and which require some thinking power. We are surprised when students do not do well in interviews.

(xvii) We expect so little from our students. A student can get the B.A. degree by working for one month in a year. No systematic study has been made of the amount of work the students put in, but it would not be surprising if the average comes out to be less than 15 hours a week. In any case it would be significantly less than 50 hours a week which should be expected from a student. If the system is not deisgned for hard work, we cannot expect well-trained students from the system.

(xviii) Similarly it would be interesting to know how much academic work, on an average, does a teacher put in? This will include his actual teaching time, his preparation time and his time for research. It will come out to be significantly less than what happens in other countries.

(xix) The output of an educational system depends on (a) work put in by the students (b) work put in by the teachers (c) resources put in by the state. A developing country should make up for lack of resources by greater inputs in (a) and (b) and the system has to be designed for achieving this. Our expectations of high standards in the absence of hard work by students and teachers and lack of resources may be unrealistic.

(xx) We expect the system to produce commitment to certain basic values. Very often values of Indian philosophy and culture are mentioned only casually to the students and do not form an essential part of the curriculum. Most students do not have their roots in Indian traditions and culture.

(xxi) We are conscious of the large scale prevalence of use of unfair means in examinations, tempering of attendance records, careless examinations of answer books (there is no accountability for this) unfair admissions, nepotism in appointment of teachers, misuse of funds in private institutions and yet we expect students coming out of such a system to uphold basic moral and ethical values.

(xxii) The whole system is based on mistrust and unhealthy competition, completely antithetic to real learning, yet we expect students to co-operate and trust one another when they come out.

(xxiii) We have purely academic courses. No manual work is ever required and yet we expect the students to be conscious of the dignity of labour.

(xxiv) No problem-solving capacities are deliberately and consciously developed. Students are never faced with real problems and yet we expect them to solve problems in life and to adapt themselves easily to new conditions.

(xxv) Our examination system is geared to use of made-easy notes. Not even standards books are required. Students are not taught the use of reference books. We do not expect them to face problems in life given in made-easy books and yet this is all that the students get.

(xxvi) Our employers do not complain that the students have not been trained for the jobs they want them to do. They believe that they can train them for these jobs themselves and they are best qualified to give such a training. Colleges and Universities are not meant to give training which can be best given on the job.

(xxvii) Their complaint is that students do not know what according to their certificates they are supposed to know. They have forgotten the facts they had memorised (or copied?) for their examinations. They have no problem-solving capacities. They do not know how to learn on the job. Quite often they do not know even how to write correct English (or the regional language), to draft letters or to write reports or to argue cases. The students cannot be fully blamed because they have not been trained with these goals in view.

(xxviii) In the present system, students are not interested in learning, but in getting degrees. If degrees can be delinked with jobs, a greater emphasis may be placed on learning.

TOWARDS A NEW EDUCATIONAL SYSTEM:

(i) We must distinguish between three sectors of higher education.
  (*a*) higher education in engineering, medicine and agriculture,
  (*b*) higher education in polytechnics, I.T.Is' and other special institutions giving training for specific jobs and awarding diplomas and certificates.
  (*c*) higher education in arts, science, commerce, humanities etc.

(ii) There is no doubt that training facilities must be provided for all existing jobs or for jobs which are likely to arise in the near future. In fact there should be large scale facilities for inservice education for persons already in vocations. All vocations must be educationalised for greater efficiency. Whenever there is a need, it must be recognized and must be provided for. The second sector mentioned above must be considerably strengthened for this purpose. For courses requiring training for over three or four years, degrees may be awarded, since degrees in general have a greater prestige than diplomas. However the number of seats should be regulated by manpower requirements, for specific training is useless unless one gets the specific job for which one is trained. These institutions should have facilities for part-time students and evening and night classes. Students from the third sector instituiions may be allowed to attend courses in these institutions and *vice-versa* and credits may be allowed for such courses. However infrastructures existing in the second sector need not be duplicated in the third sector.

(iii) The role of the third sector must be clearly understood and not confused with the roles of the other two sectors.

(iv) We live in a democracy and for its success we need citizens who are well-informed about all national and international problems, who are trained to face an unpredictable future, who have the capacity and willingness for life-long education, who can take intelligent decisions and who can provide leadership in various walks of life. Every citizen in a democracy is a ruler and is entitled to the highest possible education of a type that the society can provide with its resources.

(v) This type of education can be the only justification for the growth of the third sector of higher education in India and for its further expansion by all possible means, by regular instruction, by correspondence courses and through open or peoples universities. This is also justified by the results obtained so far. Higher education has helped not only in accelerating the scientific, technological, agricultural and commercial progress; it has also helped in removing cobwebs of superstitions, has lead to more enlightened discussions on national issues, has strengthened democracy and has provided leadership in all walks of life.

(vi) For higher education, there is an individual's goal and there is a national goal. An individual comes to higher education for rising up in the social ladder and he succeeds in it. He comes in search for a better job and in it he sometimes succeeds and sometimes fails. Not many students come to the university with the ideal of becoming better citizens or for life-long education. Though in a democracy, national progress is the sum-total of individual's progress, yet there is some confusion between the two goals which leads to frustration and does a lot of harm to the educational process.

(vii) If we assume that every citizen needs higher education for developing intellectual power and commitment to basic values, independently of the vocation he follows; then our goals become universal higher education and life-long education. We cannot achieve these goals immediately, but we can move towards these goals. If bricklayars bus conductors, engine drivers and shopkeepers are graduates, they should be more efficient in their vocations since if they have learnt how to learn, they can learn and be proficient in their vocations. There would be no frustration, but a satisfaction on having received broad-based general education.

(viii) If a person has been rightly educated, he should have developed problem-recognition and problem-solving capacity. Whenever he faces a new problem he is not helpless. He uses this capacity. Even otherwise he knows where to look for a solution. He knows how to consult the library and how to search for persons who can help him in the solution of the problems.

(ix) Such a person believes in life-long education and his knowledge ten years after his graduation may be more than double of his knowledge at the time of graduation. On the other hand the knowledge of an improperly-educated person may be significantly less than half of his knowledge at the time of graduation.

(x) To produce such persons, we need a radical transformation in the basic philosophy of our system of education. It does not mean just changing curricula or examination system or introducing job-oriented courses or training of teachers. It means more a change in goals and expectations.

(xi) The goal is to produce self-actuating, self-learning, self-renewing fully-functioning persons who can constantly reshape and re-examine themselves, who have a firm and broadbase for a life-time of learning, who can cope with unforeseen challenges and survive as versatile individuals in an unpredictable world, who have intellectual power and who are flexible, innovative and adaptive.

(xii) The goal can be achieved through a wide variety of courses and almost every subject, if taught in the right spirit can inculcate the right habits of thinking and learning. As such the student can be given greater freedom to determine his courses and to work in the pursuit of his learning goals as decided by himself. He can become a real participant in the learning process.

(xiii) Teachers will have to re-examine their teaching from this new point of view. The contents will remain more or less the same, though those aspects which require thinking and problem-solving may receive greater emphasis. Projects, theses, reading of current journals, solution of problems, reading of a number of books, real understanding, small group discussions, active involvement of students, greater use of programmed learning and computer-assisted instruction will be some features of the new approach.

(xiv) Lecture method will become less important. The teacher's role will be like that of a sports coach or of a swimming instructor. He will give preliminary instructions, but students will learn by struggling to solve problems. Teachers will become learning catalysts or learning facilitators and will not remain just information transmitters.

(xv) In examinations students will show their skills in problem solving and in thinking about new situations and not in reproducing knowledge from books and teacher's notes.

(xvi) The present atmosphere where a student must confirm to the instructions of the teachers will be replaced by one of creativity. Students and teachers will all be research workers and investigators of truth. To survive in the present world one will have to have a research mentality and courage and self-confidence to explore unchartered continents of knowledge.

(xvii) The present atmosphere of distrust and competition will be replaced by one of trust and cooperation. The student will not use his ingenuity to cheat examiners by copying and the teachers will not use their ingenuity in giving scholarly notes copied from some books. Students will not try to see that others do worse so that they get better grades. They will learn to learn cooperatively.

(xviii) Education and production will come closer together since students will study problems concerning real day-to-day situations. Education will come nearer to the community as students and teachers will look to the community for giving them real problems to solve and the community will find the educational structure of immediate benefit.

(xix) The new system will be characterised by trust, cooperation, task-orientedness, self-confidence, self-esteem, flexibility, experimentation, spontaneity, initiative, creativity, originality, innovation, curiosity, mutual appreciation, harmony, participative decision making and problems solving, honesty, integrity, responsibility etc.

(xx) This is in contrast to the present system where principals doubt teachers, teachers do not trust students, there is unfairness in examinations, there is cut-throat competition and moral values have been corroded most in the educational system itself.

(xxi) The cost will not significantly increase since students will assume responsibility for learning. Teachers will help in small group discussions of students. Most of the learning will take place in individual reading and discussions in small encounter groups.

(xxii) Students will get credit for work done outside the campus with coopted faculty members who may be government employees, bank managers, scientists in national laboratories, agricultural officers, librarians, museum curators, artgallery incharges, successful businessmen etc. The entire community may be involved in the learning process.

(xxiii) Greater use will be made of educational technology, Programmed learning materials, computer-assisted instruction, video tapes, cassettes, and films should become common. These will not be more costly than those teachers who merely transfer notes from some book to students note books.

(xxiv) For introducing the new system, we do not need vast additional resources. In fact 20% additional resources may mean double the benefit. What is required is serious thinking, innovative experiments and dedicated workers. The task is challenging, but the stakes are equally high.

HIGHER EDUCATION AND NATIONAL DEVELOPMENT

If higher education has to play its due role in national development, then the following recommendations emerge from the foregoing discussions.

(i) The second sector of higher education viz that consisting of agricultural and industrial polytechnics, industrial training institutes and institution for training school teachers, para-medical personnel and educated skilled technicians, has to be considerably widened in scope and strengthened from the point of view of flexibility and of training of part-time and inservice candidates. These should offer job-oriented need-based courses of varying durations. There may be fulltime courses of three months to four years duration. There may be part-time courses of one-hour-a-week to twelve-hours-a-week for varying lengths of time. Courses should be designed for meeting any needs that may arise. There should be a close liaison of these institutions with small scale, medium and large-scale industry which should provide incentives to all workers to increase their technical qualifications and skills and should also provide part-time instructors to the training institutions. Part-time students and part-time instructors from all walks of life should even form a majority of students and teachers. "More and more training for greater and greater effeciency in all vocations" should be the slogan. There should be courses in office practices, typing and shorthand for clerks and specially designed courses for shop-assistants, hotel-bearers, carpenters, masons, plumbers, fitters, motor mechanics, tractor mechanics, machinemen, hospital employees, TV and Radio repair assistants, gardeners, self-employed agriculturists and industrial entrepreneurs, hair dressers, electricians, referigeration mechanics, wiremen, social workers, draftsmen. sign writers, painters, decorators, tailors, needle workers, photographers, book-binders, lithographers, printers, cooks etc.

In fact there should be a course available for everyone to improve his efficiency in whatever vocation he or she is working. Lifelong and recurrent professional education should become a reality for every one in every vocation.

Increments in salaries should be earned not just by efflux of time, but by improving qualifications. For every vocation there may be three to six levels of vocational training and there should be special increments attached to every level of training.

We have started short-term courses for middle-level and top-level managements and for teachers and engineers. But the movement for short courses has to become a mass movement affecting every one at recurrent intervals in his life.

Students from regular colleges should be allowed to attend courses on part-time basis. This will meet partly their demand for job-oriented courses.

(ii) The sector of higher education dealing with continuing and adult education has to be strengthened by an order of magnitude We have to move towards universal higher education, but we must have a strong base in universal literacy. As such at present all resources of higher education viz. students, teachers buildings should be used for mass literacy drives and continuing education classes. Higher education should be a privilege for which one must pay by making some others at least functionally literate. We must provide facilities for all 'rulers' in a democracy to get educated and if necessary, we must use pressure to see that they get themselves educated. If our Constitution had included a Directive Principle that every person, ten years or older, should be functionally literate by 1975, we would have been much better now. On the other hand the directive was given for full and compulsory primary education which could not be realised since the parents continued to remain uneducated. We could use compulsion with the children, but not with the parents. There is no reason why even now we cannot insist that all rulers in a democracy i.e. all those who would have the right to vote should become functionally literate by 1985. We must provide strong motivation for the masses to learn and we must use all higher education resources for providing the training.

Life-long education, recurrent education, education for persons of all ages, continuing education, learning society etc. should become national goals. Political parties should be persuaded to accept these and campaigns should be launched to popularise these slogans. In addition, we must provide facilities for all those who are anxious to learn.

Higher education must cater to persons of all ages. Informal education, correspondence education and mass media should all be used for adult, continuing and higher education.

(iii) It is believed that higher education has contributed to mass frustration in society by producing unemployed and unemployable graduates with empty minds and tall claims. It is also felt that it is leading to deterioration of moral values by training the next generation in mass-cheating in examinations. This is the result of memory-based examinations and wrong realisation of student power. We have therefore to devise a system based on cooperation in learning rather than on competition in learning. The aim of the system has to be to create the excitement of learning for its own sake and for the sake of solving national problems. The intellectual component in education has therefore to be increased rather than decreased.

(iv) There should be clarity about goals of non-vocational higher education and to some extent of all education. One goal should be to produce individuals (a) capable of learning how to learn (b) with problem-recognition and problem-solving abilities (c) capable of adjusting to changing situations (d) capable of thinking deeply (e) committed to basic ethical, moral and spiritual values (f) capable of determining their own learning objectives (g) motivated by the desire for lifelong learning (h) capable of cooperating and trusting one another.

Clarity of goals should lead to a radical transformation of the roles of teachers and of teaching methods. Individual students participation in the learning process becomes essential. This is different from student participation in university management. It is more concerned with student sharing responsibilities for his learning. Instruction should be through individualised learning and through small group discussions of students and teachers.

With the transformation, there will be no need of memorising undigested facts. The transformation will have to permeate all education at both the school and college levels.

This transformation cannot be brought about overnight. Hard work, hard thinking, innovation and experimentation are necessary. Decentralisation of educational authority will be needed. Autonomous colleges are a necessary first step. Model institutions with dedicated teachers committed to the above goals are necessary. Universities without walls, open universities and participative education have to become more common.

Even within the present educational system, efforts can be made to achieve these goals. Changes in attitudes of students and teachers can help in the realisation of these goals. Examinations need not be based on three-hour memory-based tests. Student performance can be evaluated on the basis of learning projects undertaken, on the basis of consultation of libraries, on the basis of independent laboratory experiments designed and carried out by them, on the basis of community service, on the basis of theses and surveys, on the basis of small group discussions, on the basis of capacity shown to learn from resources outside the college and on the basis of initiative shown in learning. Students can be given problems requiring knowledge of a number of disciplines to solve. Even team solutions of problems can be encouraged and credit can be given to all members of the team. If a student can solve half a dozen suitably designed problems, he may get credit for a course. It is obvious that a great deal of research is necessary in new techniques of learning, teaching and evaluation. Even today teaching can move towards the goal of self-learning and learning how to learn. 'Here is a problem solve it', 'here is a situation think about it', should become normal techniques of teaching and learning.

Development and Underdevelopment Kerala and U. P.

B. K. NAYAR*

KERALA HAS AS many matriculate women above 15 years of age as Uttar Pradesh had in 1971. The number of women graduates in Uttar Pradesh was a third more than that in Kerala. The number of women with post-graduate qualifications in U.P. was four times as many as in Kerala. And women with doctorate degrees in U.P. were nearly seven times as many as in Kerala, according to the 1971 census data. Which of these states is educationally more developed?

Uttar Pradesh had nearly four times as many women above 15 years of age as Kerala had. The number of literate women above 15 years in Uttar Pradesh was less than two thirds the number in Kerala. Which is more developed educationally, Kerala or Uttar Pradesh?

The criteria for evaluating development was the subject of considerable discussion at a meeting of the International Committee on Science and Technology for Economic Development (COSTED) held sometime at Bangalore. Various criteria were discussed. GNP which had reigned supreme for quite some time did not find favour.

Table 1

COUNTRIES ACCORDING TO GNP IN 1972

Country	GNP in Million dollars	Per capita product in dollars
U.S.A.	1,167,420	5,590
U.S.S.R.	377,700	1,530
Japan	247,890	2,320
German (Fed. Rep.)	208,970	3,390

Contd.

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France	187,360	3,620
U.K.	144,900	2,600
China (Peop. Rep.)	133,700	170
Italy	106,660	1,960
Canada	97,080	4,440
India	61,940	110
Brazil	52,010	530

According to the World Bank Atlas on Population, pertcapita Product and Growth Rates for 1964; India had the tenth largest GNP, among 11 countries with GNP exceeding 50,000 millions dollars in 1972. The per capita product was however only 110 $, less than a fiftieth of that of USA, ($ 5590). India came 113 among 124 countries listed in the World Bank Atlas. The publication had listed 62 countries with per capita product of over $375 in the Upper bracket, 24 countries with per capita product of $200 to $375 in the middle bracket, and 38 countries with per capita product below $200 in the lower bracket. India came in the lower half of the lowest group.

In terms of growth rate, India with an average value of 1.1% fo the period 1960-72 was practically at the bottom of 15 countries with populations exceeding 50 million, with only Bangla Desh, for which no figure was given, possibly bringing up the rear.

Economic factors howsoever compulsive they may be, do not wholly determine the quality of life. The approach to life, mental attitudes, and the ability to make the maximum use of available resources and opportunities, play an important part in conditioning life. These are largely moulded by education, both formal and non-formal. Educational progress is thus inextricably linked with economic development and social well-being. Education was naturally one of the criteria which found general acceptance at the Bangalore meeting of the COSTED.

The use of educational advancement as an index of development did not receive the same unanimity when it came to detailed consideration. Should higher education be the proper index? Or should the level of literacy among the population be considered more important? How far is the educational level of women more correct as an index of development?

In the matter of higher education. India holds a significantly high place in the world. A comparison with the countries on top of the GNP ladder is given below. Recent figures for USSR and China could not be obtained.

Table 2

OUTTURN OF SCIENTIFIC AND TECHNICAL PERSONNEL

Country	Year	Total outturn of Universities		Outturn of Sc. & Tech. Personnel	
		I Degree	II Degree	I Degree	II Degree
U.S.A.	1970	877,676	265,360	184,945	75,679

India	1969	278,963	116,196	107,681	16,206
Japan	1971	274,929	13,794	86,233	9,509
Canada	1971	72,564	12,955	17,444	4,238
Italy	1970	59,913	—	19,532	—
Germany(Fed.Rep.)	1969	57,683	10,515	14,796	8,326
U.K.	1970	55,100	24,940	27,565	10,611
Brazil	1969	44,709	1,151	18,140	717

U.K. figures include both Degrees and Diplomas awarded by universities.

The out-turn of university graduates in India is exceeded only by USA and USSR. The number of persons who took a first degree in India in 1969 was about 280,000. This figure excludes persons qualifying for the BEd, BT and LLB degrees for which a first degree is generally a basic qualification for admission.

The outturn in India is about a third that of USA. Japan with a population of about a fifth that of India had a more or less equal outturn. Those who took a first degree in the leading European countries, ahead of India in the GNP table, numbered less than a fourth of the Indian outturn.

At the postgraduate level, India with over 100,000 second-degree holders had an out-turn more than eight times that of Japan, West Germany, France, Italy or Canada. The figure of 25,000 in U.K. includes postgraduate diploma holders as well.

In the matter of scientific and technical graduates, the out-turn in India of over 100,000 is about 60% that in USA, and 4 to 5 times that in the leading European countries. Japan is the only country (other than India, USA and USSR) whose output of scientific and technical graduates is near 100,000.

At the second degree level in science and technology, India had an out turn which was nearly double that of all countries other than USA & USSR. Yet, India, richly endowed with national resources and a vast out turn of highly qualified personnel, finds itself at the bottom of the per capita product list. Where does one look for the reason?

One of the paramount features of the educational out turn in India is the preponderence of the pure over the applied, whether it be arts or sciences. Japan has a graduate out turn of only 75% that of India in the scientific and technical fields. But Japan, with a population one fifth that of India, produces as many doctors as India; with an area one ninth that of India, Japan produces 50 % more agricultural graduates and more than 3 times as many engineering graduates.

Another feature which distinguishes India from Japan and West European countries is the emphasis on the training and utilization of technicians. The technological revolution in Japan was engineered more through the marginal improvements of a multitude of products and processes than through any phenomenal breakthrough in science.

Japan has been able to import technology and improve it so remarkably as to sell it back to the supplier in a short time or even virtually put the supplier out of business. We in India have placed greater reliance on the adoption of improved technology at the top and assuming its automatic percolation to the lower levels. This has often resulted in our inability to capitalise the technological gain. Science will have to interact adequately with the work of the technician and craftsman before the creativity of the nation can flower.

It is in the matter of literacy and technical training that India is way down the list. A comparision with other developing countries shows up our significant shortfall.

Table 3

LITERACY IN SOME DEVELOPING COUNTRIES

Country	Year	Age Level	Literacy Males	Literacy Females
Korea (Rep)	1970	15+	94.4	81.0
Sri Lanka	1970	15+	87.2	70.3
Mexico	1970	15+	69.3	63.1
Turkey	1970	15+	69.1	33.6
Syria	1970	15+	59.6	20.0
India	1971	15+	46.9	18.9
Philippines	1970	10+	84.6	82.2
Malaysia	1970	10+	72.1	49.6
Indonesia	1971	10+	70.8	49.0
India	1971	10+	49.3	22.2

In the literacy of males and females, India is practically at the bottom of the list of countries outside Africa for which recent data is available. Literacy seems to be one of the few factors which corresponds to India's position in the lower half of the lowest group of per capita product.

It is in this context that one may like to have a second look at the pattern of development of education in Uttar Pradesh and Kerala to consider what we should aim at.

Table 4

EDUCATIONAL ATTAINMENTS OF PERSONS AGED 20 OR ABOVE IN U.P. AND KERALA IN 1971

Sl. No.	Category	U.P. Men	U.P. Women	Kerala Men	Kerala Women
1.	Total	22,996,100	20,929,400	5,050,600	5,295,000
2.	Literate	7,215,700	1,631,100	3,886,100	2,855,300
3.	Matriculate	1,490,500	164,400	455,300	259,900
4.	Graduates	208,207	50,755	81,183	37,208
5.	Postgradudates	70,171	17,940	12,011	4,550
6.	Postgraduate & Research students	49,016		6,417	

Note: Items 1 to 5 are based on Census Data;
Item 6 is based on UGC and other data.

Uttar Pradesh had 4½ times as many men aged 20 or above as Kerala had in 1971. (The terms men and women in the following discussion will refer to those aged 20 years or more) The percentage of literacy among men in U.P. was 31.4 compared to 76.9 in Kerala. The number of literate men in U.P. was therefore slightly less than double the number in Kerala.

U.P. had nearly 4 times as many women as Kerala, but the number of literate women in U.P. was less than 60% of that in Kerala, as literacy among women in U.P. was only 7.8 per cent compared to 53.9 percent in Kerala.

There appears to be some sort of a powerful potential barrier against literacy in U.P. Once that is crossed, the progress towards higher education in U.P. in much less restricted than in Kerala.

Table 5

PATTERN OF HIGHER EDUCATION

Category	Proportion of literates with higher qualifications				
	Literates	Matriculates	Graduates	M.A/M.Sc. M.Com.	Post-graduate students
U.P. Men	1000	207	29	10	6
U.P. Women	1000	101	35	11	
Kerala Men	1000	117	21	3	1
Kerala Women	1000	91	13	2	

Among the literates, one man out of 5 in U.P. is a matriculate compared to one man out of 9 in Kerala, one woman out of 10 in U.P. and one woman out of 11 in Kerala.

Of the matriculates, 14% of men and 35% of women in U.P. had graduated in 1971. In Kerala the corresponding percentages are 18% among men and 14% among women.

At the postgraduate level, the figures do not include BEd, BT or LLB, for which the correct numbers are not available. Nearly 35% of the graduates in U.P. had taken an MA, MSc, or M.Com degree in 1971. Another 15 to 20% of the graduates in U.P. were working for postgraduate degrees. The proportion among men was slightly higher than among women. Most of them must have completed by now. It is estimated that half the graduates among men and a third among women in 1971 in UP have taken a postgraduate degree. In Kerala about a sixth of the men and women graduates are likely to have postgraduate degrees.

To sum up, in Kerala more than 50% of the women above 20 were literate; and of the literate women two or three per thousand had taken a master's degree in 1971. In U.P. less than 10% of the women above 20 were literate; but of the literate Women, 12 or 13 per thousand had taken a master's degree. Of the men and women graduates in U.P. in 1971, at least two out of five had a master's degree, compared to one out of six in Kerala.

"Over the years the ratio of postgraduate and research scholars to under graduate students in the universities and colleges has remained constant at 6% per cent of the total" says the UGC Report for 1972-73. "There is an urgent need for increasing this proportion and at the same time for improving the quality of postgraduate education and research both in the Universities and Colleges."

How much more should these proportions be increased? How do we ensure that the increasing outturn of highly qualified persons materially contribute to the development process, and not drain the available resources for literacy? How do we build up linkages to ensure that there is adequate feedback into the fields of literacy and adult education? How much of the expansion in postgraduate education should be directly concerned with dissemination of knowledge, development of educational technology, and promotion of needed skills? How can we ensure that the clamour for higher education and the undeniable need for literacy are appropriately coupled to provide an additional motivation for our developmental effort?

Education must endow the individual with competence and commitment to make the maximum possible contribution to collective welfare, if it is to be an instrument of national development.

Education and Development Strategy

S. C. GOEL*

Our strategy for the development of education in the next two to three decades must take into consideration the role of education in economic and social change. We often assume that education is a key factor in socio-economic development; this is too facile a view that received an artificial prop in the sixties with the development of the 'capital' theory of education which treated educational expenditures as 'investment in man' and the writings of American economists like Shultz and Denison who included education in national income accounting in order to explain the "residual" income in the capital/output model of the neo-classical economists. In this context one may also refer to the global study of Harbison-Myers which like many of its predecessors linked quantitative indicators of education with the level of economic development or per capita income and drew conclusions on the basis of high and positive correlations without establishing any causality between the two. Another factor in the development of education has been the need for scientific and technological advancement, a need which has never been fully established or determined precisely but is essentially a bye-product of the Second World War as the war established the supremacy of the technologically advanced countries. It was much later that the fear of war followed by cold war subsided and rational thinking came to support 'intermediate' technology as being more appropriate. The misdirected efforts of celestial bodies like the UNESCO and OECD provided the background for a political philosophy that subscribed to the development of education so fully that it relegated quality and internal coherence to a second order. Nothing can go wrong with this paradigm. For if the desired objectives are not realized, the blame can be put squarely on the system of education itself. There are all kinds of cliches like job-oriented education, relevant education, work experience and so on which make headlines in the newspapers and claim to be functional and utilitarian but are as far removed from reality as old pieces of furniture in the curio shops of London or in the attics of Rajas and Nawabs.

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The above remarks are not meant to disparage the approach of those who believe in constructing models of educational and economic development but only to under-score the important point that education, culture and polity do not mean so many colleges and schools and figures of student enrolment but the content that goes with education, the knowledge and skills it imparts and the attitudes it inculcates towards work and life. The basic fallacy in the approach of modern economists has been to ignore altogether the institutional framework within which the system of education functions in the LDC's. On purely a priori grounds, education must lead to development, provided it develops in response to the needs and requirements of the economy and creates the right kinds of attitudes. In India, as indeed in the whole of Asia, there is a tendency to overproduce the educated manpower and education itself, instead of developing skills and abilities and aiding productivity, has become a process of elimination. It is in this sense that Jagdish Bhagwati speaks of education in India as 'essentially' a process of acquiring a credential with which you can outcompete someone who lacks it, adding that 'job access paradigm' is indeed the more appropriate (for the bulk of non-professional education) and not the 'human—capital' or the 'socialisation-hence-increased productivity' paradigm. It is also a fact that the educated in India instead of playing their part in socio-economic development generally look for white collar jobs. Education is also partly responsible for the large scale migration to urban areas and for distortions that it brings about in the self-sustaining rural economy. One of the features of industrialization in modern times has been that jobs have lost much of their specificity and have become linked with paper qualifications in terms of the number of years spent at the school or college. Consequently highly qualified people do jobs meant for those less qualified and whether they do these jobs better is anybody's guess. All these considerations point out that the models of the West have been applied to the East in a somewhat cavalier fashion.

It has also to be clarified that the preceding and the following arguments do not apply to primary education and functional literacy. For whether primary education is important for development or not is besides the point. It is important for the survival of the nation and its democratic institutions. Unless a majority of our people can read and write, it would be difficult to remove the institutional barriers like casteism, regionalism, superstitions and religious dogma all of which are obstacles in the path of progress and make social mobility difficult. In main, the argument applies to secondary and post-secondary education, a level at which one must ask whether the generally educated persons and specialists turned out of the mill fulfil a social demand.

In a paper published in *Comparative Education* (Volume 10 No. 2, June 1974), the author investigated the relationship between the levels of educational and economic development in India during the period 1950-51 to 1970-71. An attempt was made to examine if there existed a direct and significant relation between the growth of education at the primary, secondary and tertiary levels, on the one hand and economic development, as measured by the per capita income at current and constant prices on the other. The basic data shows that as a proportion of the relevant age-cohort, enrolments in primary education increased from 33.6 per cent in 1951-52 to 64.3 per cent in 1970-71, those at the secondary level from 6.4 per cent to 20.4 per cent and at the level of higher education from 1.1 per cent to 5.4 per cent during the period under reference. The per capita income at current prices increased from Rs. 266.5 in 1951-52 to Rs. 633.1 (estimated) in 1970-71. There is a high and positive correlation between primary enrolments and per capita income (.85) between secondary enrolments and per capita income (.94) and between higher education enrolments and per capita income (.96). The co-efficient of correlation between the per capita income at constant prices and primary enrolments is .83; it is .93 for secondary enrolments and .95 for tertiary enrolments. Equally high correlation was found in each of the sixteen major states during the period 1960-61 to 1966-67 although the states are at different levels of educational and economic development. From these figures, can we draw the inference (as someone in hurry is likely to do) that education is a cause of economic development as measured by the per capita income?

The first significant point to note is that the correlation between the per capita income at constant prices and enrolment is lower than the correlation between the per capita income at the current prices and enrolments. If education is to be treated as a cause of economic growth, why should the correlation between the per capita income at constant prices and enrolments be relatively lower? This fact also applies to correlations worked out in respect of the States. The only way in which the difference between the two sets of correlation can be explained is by attributing to education and development a kind of 'seed and flower' relationship instead of looking for some degree of causality. The difference can be explained better by taking into consideration the effect of the rise in prices on the demand for education in relation to various classes who constitute the demand. While one can say that the demand for education is affected more by the per capita income at market prices than by per capita income at constant prices, it cannot be said that education brings about growth in terms of market prices rather than constant prices Secondly, it should be fairly clear that education is just one of the factors that bring about economic growth; there are other factors like natural resources, labour and physical capital. Also, institutional education itself is but a part of the process of total education which has a much wider connotation. Thirdly, as a proportion of the age-cohorts primary, secondary and tertiary enrolments constantly went up in India during the period except primary enrolments in 1968-69 and secondary enrolments in 1959-60 and 1963-64, yet the per capita income even at current prices declined in the years 1963-64, 1955-56; 1958-59 and 1968-69. How do we explain the decline in the per capita income at current prices except by the only rational explanation that increase in enrolments is due to an increase in per capita income rather than the otherway round. The recent trend of decline in enrolments in higher education in India which could be attributed to our present economic difficulties provides further evidence in support of the thesis that it is the income-education relationship which is more important than the education income nexus.

At this point, I would like to mention three important hypotheses which have been tested in the paper referred to above. Firstly, the demand for education increases with the growth of per capita income, provided education yields higher returns as compared to alternative returns. Secondly, the demand for education becomes less elastic at higher level of income. In fact, in the less developed countries education tends to increase at a rate faster than the growth of national income. On the other hand, in the more developed countries, the rate of growth of education is much lower and generally corresponds to the rate of growth of population. Thirdly, if the demand for different levels of education does not increase in accordance with the private rates of reutrn, a plausible explanation would lie in accentuated income-inequality. For example, in India, the returns are higher in primary education than in higher education and yet the demand for higher education has grown faster, a fact that can be explained by the growing income-inequality for which there is sufficient evidence during the period under review.

Let us examine the implications of the behaviour of demand on the growth of enrolments in higher education during the next 5 or 6 years. If we assume that the rate of growth of the economy will be as estimated in the Fifth Plan and that our aim to provide hundred per cent enrolment in the age group 6-11 and 75 per cent enrolments in the age group 11-14 by the end of the Fifth Plan is realistic, then according to the author's tentative estimates, there should be 31.76 per cent of the age-group in the secondary stage of education and 7.59 per cent of the age group in the stream of higher education in India by 1978-79. Enrolments in higher education will be approximately 1,265 per one lakh inhabitants and will compare favourably with some of the most educationally advanced countries of the world, i.e. 3,735 in USA, 2,423 in Canada, 1,881 in USSR, 1,426 in Denmark,1, 171 in Finland, 1,247 in France, 1,445 in New Zealand, 1,094 in Norway, 1,460 in Sweden, 1,148 in Yugoslavia, 1,368 in Australia, 1,605 in Philippines, 1,510 in Japan, 1,631 in Israel and 1,123 in Argentina (figures are for the year 1968).

Although cost is the least important consideration, the implications of this staggering growth on the cost-structure of education are going to be enormous. It is somewhat invidious to talk of cost in a vacuum for cost is always meaningful in relation to benefits but absolute cost becomes important when it is realized that the cost of likely expansion can be provided only by stretching and diverting our existing resources. In India, the total expenditure on education as a proportion of the national income at current prices increased from 1.3 per cent in 1951-52 to 2.9 per cent in 1967-68. This is very low compared to what educationally advanced countries spend on education, viz., Canada 8.3 per cent, USSR 7.3 per cent, USA 5.8 per cent, Denmark 6.3 per cent, France 4.4 per cent, Australia 4.0 per cent, Japan 4.0 per cent, Israel 7.6 per cent, Finland 6.7 per cent and Yugoslavia 5.0 per cent. The cost of education in India has been kept in a low key by keeping the duration of courses leading to the first degree at 14 years as compared to 16 to 17 years elsewhere and also by pegging down the salaries of teachers, especially those at the primary and secondary levels. Qualitative changes in both these directions are under way in the fifth plan and in the context of inflationary trends which will inevitably affect the prices of books, journals and equipments, it would no longer be possible to keep the expenditure on education limited. Can India afford to spend 5-6 per cent of its gross national product on the maintenance and development of education? This would be the minimum requirement for a pyramid of the shape of 8:32:80 by any comparison. One has also to keep in view the fact that education in India is highly subsidized and the contribution of private resources by way of fees, endowments etc. has been progressively going down over the years.

The decision to invest in education has, of necessity, to be related to the social demand for education, as reflected in the wage-level and employment potentiality of the educated manpower. Here we find a relative decline in the wages of educated persons and the growing incidence of unemployment. The report on the Pattern of Graduate Employment shows that the maximum period of waiting before getting the first job is about three years and the proportion of graduates who had to wait for three years or more was 6.9 per cent. We also have data on the duration of unemployment with specified educational level according to various rounds of the National Sample Survey. According to these estimates, generally speaking 8 to 10 per cent of the highly qualified scientists and engineers are unemployed. The figures are unadjusted but no one would deny the existence of large scale unemployment among the educated persons in India and the fact that its incidence is growing. One must also reckon with the fact of concealed unemployment, which implies that a large number of people with higher qualifications and training do jobs meant for persons with lower qualifications and skills. Let us be candid and admit that education does not create jobs except in so far as the educational institutions themselves may employ a large proportion of their own products and might in this sense influence the supply as well as the demand for education. A side-effect of rising school and college enrolment rates on the labour market in India has been a decline in the participation rates for both males and females in the age group 10-24 in Urban India during the period 1960-61 to 1966-67 and a similar trend in the case of males in the age group 10-19 in rural India but this is followed by a rise in participation rates in the higher age-groups. All this glib talk about job-oriented education is meaningless. For the education of one studying Sanskrit is as job-oriented as one going in for Business Management, so long as the society is willing to offer wages for their services. The important point is that an educated worker receives higher wages, and if education develops faster than national income, society finds it difficult to pay higher wages to them. Consequently, there is decline in the relative wages of educated persons unemployment, brain-drain and what you have. One cannot but be fascinated by the title of a recent book by Ivar Berg: *Education and Jobs—The Great-Training Robbery*.

Another aspect of the growth of education is its impact on internal efficiency. Unlike in some countries in the West e.g. the United Kingdom, in India "more means worse" and any attempt to increase the rate of growth of enrolments without due regard to selectivity and without commensurate improvement of facilities inevitably leads to greater drop-outs, wastage, stagnation and failures. One can have an estimate of wastage and stagnation by relating out-turn in a given year to enrolments in the preceding year, which may be called the Index of efficiency for the sake of convenience. In India the index of efficiency at the high school and higher secondary stage improved considerably from 1951-52 to 1957-58 but it started declining thereafter. Enrolment increased by 62.3 per cent between 1950-51 and 1957-58 as against an increase of 133.7 per cent between 1957-58 and 1964-65. This together with similar trends at the undergraduate level of education shows that an increase in enrolments at a higher rate brings about a corresponding fall in out-turn. An OECD report on the Development of Higher Education (Paris 1971) comes to a similar conclusion when it states that "in university education it is the admission requirements which seem to be one of the major variables determining educational efficiency, although they do not constitute the only explanation. In university systems with predominently selective admission, a very high proportion (over 85 per cent) of new entrants earn their first degree, the majority of them within the prescribed time. In others the pass rates vary between 40 and 75 percent............"

Through this paper, I have been looking for a cogent argument in support of the expansion of the educational system in India at the top of the pyramid and the only aspect that remains to be explored is that of equality of opportunity. The conditions for access to higher education are often relaxed on the ground that this would bring in the underprivileged section of the community into the stream of higher education. However, the role of education as an agent of social change and egalitarianism is extremely limited. One does not have to refer to studies by Coleman and others as it is fairly evident that with the exception of USA, Canada and USSR nowhere has higher education acquired a mass character. Even in developed countries, enrolments in higher education are not more than 8 to 10 per cent of the age-cohort and by and large students come from the upper strata of the society. According to the OECD study referred to above, considerable social selection take place before the secondary stage itself and university systems are heavily biased in favour of the upper classes. There are also wide differences in drop-out rates according to social origin, the rates are higher for the socially handicapped. Since education is demanded by persons with higher disposable incomes and the educated persons receive higher wages, education at once becomes the preserve of the elite. Hierarchical changes in education can be affected only by a high rate of economic growth or more equitable distribution of incomes and wealth in a country. In fact, higher education has expanded faster only under one of these two conditions e.g. in USSR, and East European countries on the one hand and in Canada, Japan, Taiwan, Israel and Puerto Rico, on the other. The process is irreversible and education which is both a product of the social order and an agent of social change is just not meant for bringing about equalisation of opportunity.

Egalitarianism can come only by expansion but, on the other hand, egalitarianism through rapid expansion can be a self-defeating process. The demand for education depends on returns from education and the returns depend on the rate of interest on borrowings, the cost of education per successful student and the relative wages of educated persons. If education is allowed to expand beyond the capacity of the economy to absorb educated manpower there will be a decline in relative wages and also a proportionate increase in the cost of education per successful student. In this process, private returns from education may fail to a point at which it may no longer be in the interest of the poor to demand education as they have to pay higher rates of interest as compared to the better off. And borrow they must in view of dissavings at that level, although it is immaterial whether one borrows in the market or not for in the ultimate analysis one must borrow from himself.

There are two basic principles which should govern the expansion of education in the decades to come. Firstly we should admit only those students who are properly motivated and have the necessary aptitude and ability to benefit from courses at the degree and postgraduate levels. In the absence of "selectivity" in admissions the large-scale failures and wastage cannot be curbed and in this sense, we will continue to maintain one of the most expensive educational systems in the world. Secondly, education should not be allowed to expand beyond the capacity of the economy to provide gainful employment to the educated manpower. In this context, the role of manpower planning becomes very important but, unfortunately, our tools for making the necessary projections are essentially primitive. Nowhere in the world has it been possible to forecast manpower requirements with a fair degree of accuracy and precision. In fact, the projections made in the sixties for different regions have now been test-checked and the margin of error is found to be very wide indeed. Since we cannot forecast the man-power requirements of the country, we have to enquire whether investment in education is giving us higher marginal social returns than marginal returns from other forms of social investment. In other words, we must return to a cost-benefit analysis of education in India, although the approach has some fundamental weaknesses. A study made by the author shows the following social returns from education in India for 1967-68: primary over middle 10.1 per cent, middle over primary 9.9 per cent, secondary over middle 5.0 per cent, B.A./B.Sc. over secondary 4.8 per cent and M.A./M.Sc. over B.A./B.Sc. 8.6 per cent. These returns do not compare at all with alternative returns from other sources of investment and worse still, there has been a decline in the returns as compared to those calculated for Urban India (1960) by Mark Blaug et al. On the other side, the private returns from education in India are higher than the social returns all along the line. These are 10.4 per cent for primary over illiterate, 10.1 per cent for middle over primary, 6.0 per cent for secondary over middle, 6.4 per cent for B.A./B.Sc. over secondary and 11.7 per cent for M.A./M.Sc. over B.A./BSc.

When private returns are higher than social returns and there is no shortage of educated manpower in the core sectors of the economy, the strategy for development seems to be farily clear. There should be an embargo on the expansion of numbers. This calls for circumspection in the establishment of new universities and new colleges but more than that it involves a freezing of the existing numbers in all colleges which have an enrolment of more than 600 and are economically and academically viable. The University Grants Committee in UK applied a similar freeze last year in respect of science and engineering departments in view of manifest unemployment among science and engineering graduates. There is no reason why India with essentially limited resources should not freeze numbers in view of the large-scale unemployment among graduates. It is true that we are planning for 10-15 years hence and there is no method of projecting the needs of qualified manpower over a long period but assuming that there is a shortfall in out-turn as a result of our 'freeze' policy, the situation can always be met by shifting of courses and by those in the pipeline. Moreover, the rate of return analysis is a dynamic model in which the position can always be reversed, whenever we find that social returns are higher than private returns.

The fact that private returns are higher than social returns indicates the possibility that exists of utilizing private resources for the development of education. Private endowments could certainly be augmented by laying down stringent conditions for the affiliation of colleges and establishment of universities. The existing imbalance between private and social returns at the post secondary stage of education can also be corrected by raising fees. At the present stage of the development of higher education in India, lower fees do not help anyone except the upper strata of the society. In fact, public subsidy of higher education is a kind of regressive taxation, as the cyclical movement from higher incomes to education and education to higher wages tends to accentuate income inequalities in the country. The argument in favour of an upward revision of fees is economic but it will also have academic gains for higher fees will bring about greater student involvement and strengthen their motivation. The charge should be gradual and a higher scale of fees should be supplemented by a liberalised scheme of scholarships or interest-free loans available to all those who gain admission to a university or college but are unable to meet the costs.

There remains the problem of dealing with those who are unable to find a place in a university or college. In this context, one may talk, *ad nauseam*, of vocationalisation of secondary education but that approach to my mind betrays a total ignorance of the pattern of the demand for education in India. Vocational courses at the secondary or post-secondary level serve the lower middle-income groups but the demand for higher education comes from the higher income groups and this hiatus between demand and supply will always remain an enigma to educational planners in the country as in the past a number of polytechnics, trade schools etc. had to be closed down owing to lack of demand. The only way in which this overflow can be provided for and school and college education can be expanded to the special advantage of the weaker social classes is through the provision of correspondence courses. This does not involve any forgone costs and if used imaginatively it can serve not only inservice students but others who can receive instructions through a mix of media. Of course, care and vigilance will have to be exercised to ensure the maintenance and coordination of standards of correspondence education. Correspondence education would, however, attract a sizable proportion of the student population only if there is a freeze on existing numbers in the regular courses specially in scientific and professional subjects.

I have not deliberately touched upon the problem of brain-drain. For so long as the private returns from post-secondary education continue to be lower in India than elsewhere, the problem is not going to be solved. The only way in which these returns can be pushed up is by a bold decision not to over-produce. In the meantime, there is a strong case for some form of income-taxation on Indian academics settled abroad. The tax can be levied through bilateral agreements and the proceeds should be utilized for strengthening the existing facilities in universities and colleges, which would be a further incentive for academics to come home. A lot of wishful thinking indeed.

Higher Education and Development
Changing Strategies in the Indian Context

J. VEERARAGHAVAN*

COMMENTING ON THE observed lack of consistency between educational policies and development objectives, the World Bank's Sectoral paper on Education has pointed out that "educational policies were simply keeping company with overall development objectives which were themselves irrelevant to the societies and conditions of developing countries."[1] A basic task therefore is to determine what goals and paths of development are relevant to the present Indian Context and to specify the role that Higher Education may play in this context.

GOALS OF DEVELOPMENT

Time was, not too long ago, when development meant economic development and that too measured by growth in Gross National Product (GNP). It is now realized that 'quality of life' and not GNP should be the goal and an attempt is being made to evolve a set of "Social Indicators" to supplement GNP. In an underdeveloped country, however, the growth in GNP still remains the main concern, as without this growth, the other aspects of "quality of life" cease to have meaning at least to large sections of the people.

The way a given GNP is produced, and the way it is distributed are of equal concern. National development has been redefined so as to include not only the growth of GNP but also an equitable distribution of incomes, full employment, the alleviation of poverty, the provision of minimal social services and the enhancement of cultural satisfactions. If achieving these other goals of development requires a sacrifice in the rate of growth of

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Dethroning GNP from its position of being the sole arbiter of development strategies is not a mere symbolic gesture. It is a clear rejection of the GNP, the sacrifice is nevertheless justified and leads to a better cost-benefit ratio in terms of the given objectives.
trite saying that production must be there before you can distribute it. This 'truism' has often been used (or misused) to justify policies that are iniquitous and a false opposition between equity and efficiency is often created. In the long run there is no opposition between the two; in the short run too, if the goal of society is towards equity, it is certainly not "efficient" to move away from this direction. In practical terms this implies that policies and programmes for provision of social services, nutrition, and employment to the poorest sections of the society cannot be undervalued on the ground that the resources diverted from these purposes can speed up the growth rate of GNP.

Along with this change in the goals of development there has also been a change in the understanding of the nature and process of development. Simplistic views of development which were highly popular in the post-war years and which saw development as a function of capital formation and at best a function of capital formation and human skills (investment in human resources) have now given place to a deeper understanding of the process of development. Development is not a cluster of benefits given to people in need, but a process by which they acquire a greater mastery over their destiny.[2] It is an all round process embracing all aspects of life, all institutions in Society and not a narrow economic or political process. It is above all a cultural process. "Development is patently a process of cumulative changes advancing in a continuity. ... Man is part of the culture in which he was born, has lived, and has beecome socialized and he is its carrier and disseminator as well as the producer of additions to it. The culture of one society cannot be substituted for another, it can only be changed; in this process some of its elements are more exposed than others, and it is these which are utilised in new action."[3]

Development, therefore, needs to be considered in a particular context, here it is in the Indian context 1975-2000. The Education Commission[4] listed four major problems of National Development:

(1) Self-sufficiency in food
(2) Economic growth and full employment
(3) Social and National integration
(4) Political development

All this required, according to the Commission, "the education of the whole population in new ways of life." At the same time, the Commission warned against the naive belief that all education is necessarily good and will necessarily lead to progress and pointed out the need for the education system (a) to be related more closely to the life, needs and aspirations of the people,

(b) to be linked to a rising spiral of productivity and (c) to promote values of social and national integration.

What would these goals mean in concrete terms? This involves estimates for the future and whatever the faults in the methods of estimating, some estimates are better than none. Further the methodology for making such estimates is becoming increasingly refined.

Of one problem we are certain. India's population which was 547 million in 1973-74 will be around 945 million by 2000 A.D. The Second India study of Indian Economy in 2000 A.D.has estimated the following requirements by extending Planning Commission's projections of 1985-86 to 2000 A.D. at a growth rate of 6.2%.

	1973-74	1985-86	2000
GNP in 1972-73 prices (Rs. in crores)	450,50	885,24	2276,70
Population in millions	547	734	945
Per capita GNP (Rupees)	824	1206	2409
Per capita GNP (£)	103	151	301
Foodgrains (million tonnes)	104	170	274
Cotton (meters)	7800	14100	31185
Paper and Board (000 tonnes)	830	2100	7844
Newsprint (000 tonnes)	43	420	12663
Cement (mn. tonnes)	16	44	183
Electricity (mn.)	72000	245000	1371613

There are similar increases in other items; steel, fertilizers etc. But enough indication has been given of the kind of effort needed over the next 25 years. We should note that even if achieved the $ 300 per capita in the year 2000 A.D. is not a very abmbitious target considering that in the year 1972, 76 out of 123 nations of the world had already reached this level and many had far exceeded this level. (The top 20 countries had over $ 2000 per capita income).

Nevertheless, it involves a substantial effort as it calls for 6% growth rate in the next 25 years compared to our achievement of 3% growth rate in the last 20 years. (On the other hand compared to the growth rate in 50 years prior to 1950 the rate of 3% for the last 20 years is considered a significant turning point in India's economy and there is no reason why one should not raise the sights to a much highr growth rate than 6%).[6]

SCIENTIFIC AND SOCIAL RESEARCH

The implications of this picture for higher education are clear. First there is the need for significant breakthroughs in scientific and technological research to solve several physical constraints that would obstruct increase in production on the scale envisaged. It is through such technological and scientific advance that substantial growth can be achieved and if the advance is relevant to the conditions in the country, employment can be provided to the teeming millions. A country of continental size with the complexity of problems facing it cannot rely on imported research and imported technology. The National Committee on Science and Technology (NCST) have identified the areas of research to be given priority. Welcome as this is, it requires periodic review to keep it in line with development efforts. Further in translating the research policies into actual work, there is need for coordination between what is happening in Research Institutes and National Laboratories, in industry and in higher educational institutions. It may be trite to say that there should be optimum use of facilities through such coordination. But it is worth repeating this to ensure that there is a planned programme of joint participation not only in Research but also in Education. The great task before Higher Education is the undertaking of research in several critical areas and the building up of great centres of advanced work in specified fields. Can higher eduction make available men of requisite calibre who can initiate and sustain the type of work that is needed? The availability of such competent men is itself related to the extent of involvement of Higher Education in research and the extent of faith which the higher educational community and the country has in Science and Scientific Research. Without such faith the requisite morale cannot be created and the problem of the highly qualified men seeking outlets for work elsewhere than in the country cannot be solved. In our context, then, it is Higher Education's primary responsibility not only to undertake research of a high order and train research personnel of high calibre but also promote science and scientific attitude and faith in our ability to find solutions to our problems.

Such research is equally needed in the field of social sciences and management. It is not enough to have a clear programme or policy of development. One must understand the instrumental reasoning that operates in society to ensure successful implementation of such programmes. As pointed out by Prof. Lowe:[7]

"Three different steps, all of them related to control, are required to assure good working order to goal-adequate motion.... The first is political: postulation of a macro-goal and of the qualifying criteria to define the overall purpose of economic activity. The second step is scientific: instrumental elaboration of the system's path of the behavioural and motivational patterns, and of specific measure of control, all of which are to be suitable to transform the initial state into a terminal state of goal-adequacy. The third step is *administrative;* application of the measures of control as derived by instrumental analysis to the actual regulation of the structure and, above all, of the dynamic forces of the system." We have to understand the full implications of the 'instrumental elaboration' of the system's path, the motivations of individuals and institutions. If we do not take these into account the attempted reforms will not attain the desired level of success. At a deeper level there is need to investigate the linkages between existing values, norms and practices and societal growth. For instance if the current child-rearing practices in rural areas militate against the development of requisite drives and fosters an easy dependent attitude, development could be helped by correcting such practices.

There is another major area of research. The expected rates of growth of the economy indicate that elimination of poverty would remain a long-distant goal. Further, there is reason to believe that in the normal course the process of development often has an inequitous effect. Attempts to redistribute benefits in favour of the poor are likely to meet not so much with open resistance (as most persons would subscribe to the ideals) but with hidden resistances inherent in the existing structures, institutions and value systems. The question is, how to ensure that the benefits percolate to the poorest and they become equal partners and beneficiaries in development? Not enough is known in this area. As pointed out by Robert S. McNamara:[8] "all of us need a clearer perception of the problem. We need both more and better quantitative data on past and current trends in employment and income distribution. There is need to identify concrete policies and actions that will reduce the skewness of the income distribution. Admittedly we are on the *verge of a new field of knowledge* here and we have far more questions than we have the answers. But the urgency of the situation is much that we simply cannot wait until all the answers are in". The author then proceeds to make five specific suggestions: (1) there should be specific targets for the income growth of the lowest 40%. In the short run this rate should at least be equal to national average growth rate and in the long run (10 years) faster than national average; (2) rural unemployment and under-employment should be attacked head-on thro' a rural works programmes; (3) Institutional reforms to redistribute economic power are needed and (4) a change in the pattern of public expenditure—by providing more and better social services for the poor and (5) elimination of distortions in prices of land, labour and capital so that the richer classes do not get access to the scarce resources on more favourable terms.

It is obvious that good measure of socio-economic research would be needed to ensure that development results in equitable flow of benefits.

VALUES AND ATTITUDES

The second major area of contribution of Higher Education is related to leadership and values. Higher Education has always had and will have a role as a critical evaluator of Society. In the words of the Education Commission, it is not a community service station.[9] It must give society what it needs and not what it wants. A great difficulty in this regard is a certain lack of consensus in regard to values. In a recent Seminar in New Delhi. Prof. Yogendra Singh identified the modern challenge to traditional values as involving attempts at replacing hierarchy by equality. holism by individuality, continuity by historicity, transcendence by techno-scientific rationalism. But a report on the Seminar states that not many of the participants were prepared to commit themselves to such straight choices. Professor S.C. Dube pointed out in the same Seminar that it would be difficult to identify the core values of the Indian traditions as so many different streams have come to shape its rich cultural heritage.[10] We are justly proud of our diversities of languge, religion and traditions. But these very diversities and this very lack of consensus underlines the need for a strong leadership in building up an appropriate value system that can help development and equitable distribution. It should surely be possible for higher education to develop in the students (and in the faculty) the personal values of intellectual objectivity, curiousity and hard work, the social values of austerity (as a counter to consumerism), of service to and identification with the community, and the national values of equality, democracy and integration (to mention but a few). It is true that values are derived from Society as a whole and the higher education as a sub-system by itself cannot shoulder this responsibility; nevertheless the task of leadership in changing and moulding values rests to a large extent on the higher education system. If the academic community do not subscribe to and foster a basic set of values appropriate to development and equality, the path of development would become more difficult than it needs to be.

TRAINING THE YOUNG

IN paying attention to the special problems of development or research or to values, higher education should not tend to neglect its core task of developing to the utmost the potential talent of the students. This task is "to provide opportunities for the intellectual, aesthetic and skill development of individual students and the provision of campus environment which can constructively assist in their general development and growth."[11] (Carnegie Commission), or as the Education Commission puts it, "The task is to provide competent men and women in several arts, science and professions who will also be cultivated individuals imbued with a sense of social purpose."[12] The greatest danger to the country's development comes from soft curricula and easy evaluations. The colleges must train the young in the hard ways of taking up and meeting challenges in a disciplined manner. Nothing is more destructive of the talents of youth than a kind of weak education which does not challenge their abilities and make them excel. Such an education system cannot be called 'higher' and does not fulfil even Professor Arrow's 'screening function' efficiently. The question is sometimes raised if a tough curriculum or examination would offend the principle of equity as large numbers would be left out of the higher education system. There is obviously some misconception here. It is no "justice" to provide something which is of doubtful utility. It is no injustice to deny higher education to those who cannot obviously benefit from it. It is certainly unfair and a waste of time to make such persons go through a college. The idea that denial of access to higher education would mean social injustice arise from the fact that a degree is a status symbol and a passport to good employment. As long as the degree is an "effective" screening device, those who pass the screen must necessarily get better rewards in any system where rewards are linked to ability, but it should be possible to adopt a strategy where (a) differences in rewards are narrowed down, (b) those who are best fitted by merit secure admissions to full time higher educational institutions with reservations and special arrangements for backward areas/communities, and (c) the rest are allowed to pursue higher education at their own pace and at their own expense through non-formal channels such as correspondence courses or part-time education. The rush to colleges must be contained to prevent a wasteful type of higher education not only in a financial sense but in an academic sense (enrolment must be regulated not only by linking it to the capacity of the economy to absorb the output in meaningful types of work, but also in terms of the capacity of the students to benefit by it.)

At the same time it is undesirable that the colleges draw their students from a narrow segment of society. To the extent this happens, higher education is deprived of a fair share of the talent in society besides offending the principle of equity. The remedy lies in developing first and second level educations so that all sections of the community would have the benefit of quality education and the more talented among them could be identified and helped to pursue higher education.

Limited enrolments will enable Higher Education to play its role more effectively. Within the given resources it can give greater priority to the needed new directions to which we have drawn attention, namely the new emphasis on research, the development of values and attitudes, the vigorous training of the young and a pioneering role in rural transformation. Unlimited enrolments will lead to the inability to cope with these major tasks. Limited enrolment will also enable the colleges and universities to pay special attention to and provide special facilities for the students from the more backward areas or sections of the community and to the first generation learners. Even equity calls for limitation of enrolment.

These strategies have to be pursued within limited resources; and as scarcity of resources will continue, the basic strategy of higher educational development will have to be based on *reduction of unit costs* through optimum use of resources and through educational innovations for reducing the time needed for more effective learning. The International Education Commission had noted that 'fortunes are waiting to be picked up here'.[13] This calls for an experimental approach and the grant of autonomous status to certain colleges is only the first step.

TRANSFORMATION OF RURAL INDIA

By far the most crucial contribution Higher Education can make is towards the transformation of rural India. First and foremost, there is the problem of food production and in a broader sense of the entire agricultural production to provide for 1000 million people by the end of the century, to prevent undernutrition and malnutrition. As Gandhiji said, "If God were to appear in India, He will have to take the form of a loaf of bread." The recurrent famines of the earlier centuries may be a thing of the past, but with the limited land and water resources, the future poses a great challenge. Rural development will continue to be the focus of development for years to come and the task cannot be left to a few agricultural colleges and universities. It is a task for all colleges and universities, it is a task they can perform by appropriate restructuring of courses and by helping to organise programmes of non-formal education for the masses of India and through 'student volunteer services'. It is great opportunity for the faculty and the students to identify themselves with the villages and help in their transformation.

The provision by urban India of the requisite reasearch inputs, or physical inputs such as fertilisers, machinery and power and other needed manufactured goods, will not by themselves create sufficient momentum for rural transformation. Rural India is too vast to develop by the mere pull of urban development. It needs its own self-generating push, a capacity to solve its own problems.

The efforts at rural development have been many and varied and the success achieved has been uneven. We had the Community Development Movement, the Agricultural Extension Services, the Intensive Agricultural Development Programme, and lastly the 'Green Revolution' based on high yielding varieties. We have also the special programmes for small and marginal farmers, programmes for cattle and dairy development, for sheep and poultry farming and for horticulture. Supporting all these are the network of Agricultural Colleges and Agricultural Research Stations, the soil conservation and afforestation programmes, the irrigation and power programmes. We have also agro-service centres, the rural cooperative and credit movement, the programmes for village and rural industries, the programmes of primary health centres and of family planning. We have finally the educational programmes in the rural areas including the functional literacy classes for farmers and special programme for youth in the age-group 15-25. With their varying degrees of successes and failures, the personnel of the programme agencies have in them a vast experience accumulated over the years of how development can or cannot occur and in their totality they constitute a major force for rural change, though their impact today might be much less than what it ought to be on account of several operational factors. The area to be covered is just too vast, the number of families to be reached just too many, the physical inputs (including credit and other resources), just too inadequate and the knowledge input from the research system just too general to answer specific problems; further the vagaries of climate and weather, the difficulties, in transport and communication, the force of the traditional 'messages' operating vis-a-vis those of the modernising messages, limit the efficacy of the attempts at rural development. The abject poverty of several areas, the lack of motivation arising from different styles of traditional living also militate against change.

Nevertheless, if dramatic results have not been achieved (except perhaps, in regard to the Green Revolution), enough has been achieved over the years to provide a basis for confidence in the future There is a critical level of impact which when reached will re-energise these very agencies who will then be drawn into an ascending spiral of development.

It is in hastening this critical level of impact that Higher Education has to play a crucial role as it is an uniquely fit instrument for the same. What is needed for each institution of higher education (or a group of them) to take us a specified area with a clear cut goal of concerting and integrating the efforts of all the different agencies in the area, supplying the missing knowledge/skill inputs through non-formal educational programmes, undertaking intensive researches to unearth the hidden obstacles to development, organising and motivating adult and youth groups, thereby generating the kind of demand that will make optimal use of Government sponsored programmes and also mobilise local resources. It might be thought that these are too ambitious and impossible goals for educational institutions and that they cannot substitute for effective administrative and political leadership. But higher education institutions can demonstrate what is possible of achievement in a limited area by a systematic application of knowledge and effort. They have the advantage of having large numbers of enthusiastic manpower (namely the students) and the leadership of men trained by their profession to think critically and objectively and who hopefully have also a commitment to serve as well as to succeed.

It should be made clear at this point that the faculty member or the student is not being diverted from his basic tasks of teaching and learning or rather of exploring and learning together. There are few disciplines or subjects whose curricular objectives at higher educational level are not better met through such programmes which make education highly relevant and give meaning and purpose to the student beyond the examination. Even in those disciplines or subjects where the work in such rural areas, cannot directly contribute to the narrow curricular objectives, the experience would enrich the personality of the students and fulfil the broader objectives of higher education. At the higher level of research students whether in natural or social sciences, they will certainly find the pursuit of knowledge more exciting and purposeful when linked to action programmes. Higher Education will become productive, get linked to the community and get greater support. Closer knowledge of rural areas and the satisfaction derived from the work might attract at least a few for work in rural areas on a permanent basis.

While agricultural production must necessarily get a certain priority in the programmes of rural transformation, the concept of rural development goes much beyond mere increase in agricultural production. The conception of rural development visualises: "......basic goals of rural development as being much broader than increased agricultural production and economic growth in the narrow sense. They also include equitable distribution of income and land, increased rural employment, improved health, housing, education and general living conditions for all rural people, a larger voice for rural people in running their own affairs........... In brief the wider vision equates rural development with the throughgoing transformation of rural institutions, processes and human relationships, requiring a vigorous and forthright attack on rural poverty and social injustice."[14]

Demonstration of such a transformation in selected areas through intensive work and application of knowledge and skills would be of inestimable value to the programmes of development and could be a major contribution of Higher Education.

One would have liked to conclude the present exploration of Higher Education's role in Development with an attempt at quantifying the benefits from these contributions and by juxtaposting these with the costs of higher education (namely the benefits that would have accrued in the next best possible investment) arrive at the desirable level of investment in Higher Education. But though there have been many studies in this area, it is extremely difficult to arrive at any set of quantifications of the value of the contribution of higher education which one can use with some degree of confidence in policy formulation. In the face of this difficulty several different approaches have been evolved to determine the appropriate share of Higher Education in the investible funds. Some of these approaches may be briefly mentioned:

(1) *The International Comparison Approach:* Here the percentage which higher educational enrolments bear to the related age-group (20-24) as between different countries is used as the criteria. The percentage of enrolment has, however, to be related to the level and type of economic development and can, therefore, be quite misleading as a policy guide.

(2) *The Rate of Return Approach:* The earnings of graduates over their life times as compared to the earnings of those who are not graduates are compared to arrive at the net contribution of higher education. The

difficulties here are that the earnings often reflect factors other than the additional ability acaquired through higher education. Further to the extent the earnings do not reflect the value of marginal products of the employees, this method of calculating the rate of return is likely to result in distortions. Though this is a useful tool, it has to be used with great caution.

(3) *Manpower Requirements Approach:* Here the number of graduates, post-graduates etc. required to produce a given national product is estimated on the basis of census and national income data sectorwise. However, changes in technology make short work of such calculations. Also there is the phenomenon of upgradation of educational qualifications as the following table will show:

Working Force by Educational Levels 1961 *and* 1971

	1961 Census	1971 Census	1961 pattern of Manpower applied to the GDP of 1971	Additional employment due to upgradation of educational qualifications
1. GDP at constant prices (base 1961-100) in Rs. crores	13366	19219	19219	—
2. Stock of Matriculates (In millions)	4.13	8.91	6.46	2.47
3. Stock of Graduates and above (in millions)	0.84	2.36	1.34	1.02

Note:—The calculations in column 4 have been arrived at by aggregating sector-wise projections.

The above table shows that for matricualates as many jobs have been created through educational upgradation as through growth in national income. As for graduates, twice as many jobs have been created through educational upgradation as through growth in national income.

The educational upgradation may be a necessity in the case of an increasingly modernising economy and therefore, may be justified. On the other hand, it may merely reflect the position of over supply of matriculates and graduates or it might indicate a deterioration in the educational standards or it might be the result of all these factors. If we assume these trends would continue, it would be possible to work out the future requirements of matriculates and graduates based on postulated growth rates in different sectors of the economy. But these estimates will have serious limitations in view of the structural changes that might occur in the pattern of economic growth and the technological changes that would vary the requirements of qualified manpower per unit of product. Further, if the projections indicate the inability to employ all the available manpower at given rates of growth, this will call for a change in the pattern of economic growth and in the technology to be adopted as full employment is as much a goal of development as economic growth itself is. Precise calculations on existing pattern of employment may not, therefore, be of much benefit.

(4) *Share of National-Income Approach:* Another useful approach in determining the quantum of investment is based on an *ad hoc* judgement of the percentage of the national income that should be devoted to education and the share of higher education in the total educational budget. The Education Commission had proposed a target of 6% of national income to be devoted for educational purposes by the 1985-86. If we keep the same target for the year 1990-91, the funds available for Higher Education in that year should be 2% of the estimated National Income (assuming a third of the educational outlay should be on Higher Education, another policy norm of the Education Commission):

Envisaged Growth rate in national income	Estimated National Income in 1990-91 (Rs. in crores 1972-73 prices)	Funds for Higher Education (Rs. in crores 72-73 prices)	Enrolment in millions Rs. 1500 per student unit cost
3%	71903	1438	9.6
5%	94329	1886	12.6
7%	126004	2520	16.8
9%	149712	2994	20.0

From the present enrolment of 4 million, the enrolment can go up to various levels depending on income-growth and depending on a policy of reaching the Education Commission's target of 6% of National Income for Education by 1990-91 (with 2% for Higher Education). But should the investment be of this order?

The question of how much is to be invested in higher education cannot be divorced from the effectiveness of the contribution which it makes. If higher education makes significant contributions on the lines already indicated, it would not only result in a faster growth of national income than would otherwise be the case, but the justification for a larger share of investible funds would also be considerably strengthened. If on the other hand, the quality of higher education leaves much to be desired, if the education is not relevant, if research does not lead to breakthroughs and if the training of the young and the fostering of values are given insufficient attention, it is quite conceivable that irrespective of the methods of approach in estimating the share of higher education, one would be forced to the conclusion that less and less should be invested in this area. On the other hand, the basic fact is that the cost of *not investing* in higher education could be crippling for an economy that has to rely very heavily on the advancement of knowledge and human capability in uplifting itself. The inevitable conclusion, therefore, is that if the returns to higher education today are inadequate, the answer may lie not in reducing the funds that are flowing into the system, but in looking into the causes for such low returns and ensuring that the potential contributions from the system are realised This is another way of saying that the returns to higher education should become what they ought to be in our context. This is the challenge before Higher Education.

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Some Reflections on the Strategy of Human Resource Development in Developing Economies

P. D. SHRIMALI*

1. The 'Aspirations Explosion'

The three decades following the cessation of the Second World War have witnessed the liberation and emergence of a large number of peoples and states with heightened aspirations to develop and modernize themselves in the shortest possible time so that they may gain their rightful place as equals in the Comity of Nations of the world. This 'aspirations explosion' among the peoples has inevitably been accompanied by the explosive desire to educate themselves and their children and acquire knowledge of the latest advances in the different fields. This 'explosive desire' for education has been manifest not only among the relatively better placed and privileged upper layers of these communities, who too had been victims of discrimination during the pre-liberation colonialist era, an unprecedented upsurge has been witnessed among the downtrodden too, who had been subjected to discrimination and denied the opportunity for generations.

It has been in keeping with these aspirations, viz., accelerated development and modernization on the one hand, and rapid promotion of public welfare on the other, that the developing countries chose the path of 'planned development' and the plans of these countries, invariably incorporated these two goals as the foundations for the various programmes chosen.

2. The Significance of Human Resource Development

The historical experience of the modernization and accelerated development processes in the case of the 'late starters', viz., Germany, Japan, Russia indicated that such economics must necessarily base their advance on latest, superior and more sophisticated technology, if they are to catch up with the already 'developed' and be in a position to withstand fierce competition from them. It required that they pay far greater attention to the tasks of mass education and skill formation of different levels and variety alongside and as part and parcel of the programmes of physical capital formation i.e. setting up of the vast number and variety of productive enterprises in different fields, than had ever been attempted by or observed as having occurred in the case of the 'early starters'. The programmes of educating the people, changing and reorienting their attitudes and outlook towards life, work and methods of doing things, and rapidly building up the requisite stock of skilled personnel, i.e., 'human capital formation' and that of 'physical capital formation' were seen and, on experience, found to be not only complimentary to each other, but mutually reinforcing. Some of the recent studies of the long-term growth in the developed countries also indicate that a major proportion of the growth is attributable to education and other 'residual' factors like 'efficiency' and 'organisation', the latter too being largely dependent on educational attainments of the community.

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3. The 'Education Explosion' in Developing Countries

The planned programmes of development in the developing countries, therefore, both on emotional (aspirations), as well as, rational (requirements of rapid development) considerations, comprised of sizable programmes of educational development. These programmes had, in many cases, to be massive in character because of the conspicuous lags in the level of educational development at the commencement of the period in these countries and the largeness and high rate of growth of the size of the communities involved.

India may be taken to be typical of this trend in the developing countries. Some Rupees two thousand crores representing approximately six per cent of the total public sector outlay over the period 1951-1974, has been poured into education of different levels and types by the government in India. As a proportion of national income, the outlay on education rose from a level of about 1.2 per cent in 1950-51 to 3.4 per cent in 1970-71. The number of primary schools increased from 1,40,794 in 1947-48 to 4,04,418 in 1970-71, and middle schools from 8,823 to 88,567 in the same period. The number of secondary schools rose from 6,682 in 1949-50 to about 36,000 in 1970-71. The number of colleges and universities providing higher education rose from 636 and 19 respectively in 1947 to 3604 colleges, 84 universities and 9 institutions of University level in 1970-71. The student enrolment in the primary stage (6-11 years) rose from 14.11 millions in 1946-47 to 63.75 millions in 1973-74; in the Middle stage (11 to 14 years) it rose from 2.04 millions in 15.03 millions in the same period; in higher secondary stage (14 to 17 years) it rose from 1.08 million in 1949-50 to 8.5 millions in 1973-74; and in the higher education stage (17 to 23 years) it has risen from 0.25 millions in 1946-47 to 3.0 millions in 1973-74. At the university level, many new scientific and technical subjects have been introduced which were not being taught earlier in the country and the number of students engaged in the study of science, engineering, technology, medicine, agriculture and veterinary science rose from 0.16 million in 1950-51 to 1.34 million in 1970-71. There has, thus, been a tremendous expansion in education in India over the past twenty to twenty five years, the student enrolment at the primary level having risen to nearly 4.5 times, that at the middle school level to nearly 7.4 times, at the higher secondary level to nearly 8.0 times and at the higher education level to nearly 12.0 times over this period. The stock of scientific and technical personnel has risen to nearly 7.5 times during this period. In spite of an expansion of this order, the per capita outlay on education in India remains among the lowest in the world; some seventy per cent of the population remains illiterate, and some forty per cent of those in the age-group 6-11 years, more than two-thirds of those in the age-group 11-14 years and nearly four-fifths of those in the age-group 14-17 years do not yet find place in the schools of the corresponding level. Higher education remains confined to a mere four per cent of those in the age group 17-23 years. The over-all structure of education presents a pricture of an inverted pyramid, there having been a less rapid expansion at the lower levels of education coupled with a very rapid expansion at the higher level. At the higher level, the structure has remained static, the percentage of students studying general and non-professional courses continuing to be virtually constant at a high and dominating level. While there is a tremendous pressure for expansion of educational facilities at different levels, educated unemployment of a significant magnitude including that of personnel with technical and professional training has emerged. This has given rise to doubts regarding the appropriateness and rationale of the strategy and programme of educational development.

4. THE ALTERNATIVE TECHNIQUES AND THEIR EFFICACY

AMONG the various techniques evolved and used for the purposes of educational and human resource development planning, viz. (i) The 'Manpower Forecasting' Approach; (ii) The 'Social Demand Projection' Approach; and (iii) The 'Rate of Return' Approach, the first two have been mostly used in India and other currently developing countries.

The first attempts to provide an advance estimate of the future demand for the personnel of differing skills and qualifications on the basis of the planned pace and pattern of growth over a certain stipulated period and certain observed coefficients indicating relationship between the output and manpower of different skills. On the basis of such forecasts, guidelines are formulated for the expansion of educational system and its structuring so as to establish a balance between demand and supply of each type of personnel at different points in time. This technique is mainly used to make the educational planning serve the purpose of ensuring a balanced supply of highly qualified persons. The success of this method depends upon three factors: (i) that the realized pace and pattern of growth in the economy does not depart from the assumed one; (ii) that the coefficients concerning skill-mix requirements of labour force used for estimating the demand for personnel of different skills are realistic; and (iii) that the programme of educational expansion is correctly worked out and implemented. Any deviation may cause shortages or surpluses of specific categories of manpower *ex post*.

The second seeks to estimate the total demand for education of various types and levels on the basis of the observed preferences of the individuals comprising the community and the social aims and policies laid down by the government for the specified period. Guidelines for the expansion of education and provision of appropriate facilities are worked out on that basis.

The third attempts an expert analysis of the consequences of the pace and pattern of investment in the educational sector and provide guidelines for acceleration, maintenance or retardation in it so as to keep educational facilities at just that level which would help equalize the rate of return on investment in human capital to that in physical capital. This is an exercise in the application of the technique of marginal analysis and assumes perfect market mechanism, malleability of capital, mobility of labour, and rational employment policies. This technique, though highly appealing because of its elegance, suffers from several weaknesses. Its assumptions are not realistic as the situation characterising the developing economies is just the reverse. Secondly these economies are in a State of rapid structural shifts and this technique tends to be static in its approach. Thirdly, it tends to treat all sectors in the economy as of equal significance and fails to differentiate between them and give each of them due weightage and priority for investment allocational purposes on the basis of its linkage effects on the economy and potentialities for generating external economies. Fourthly it totally ignores, the private preferences regarding education, as well as, the social aim and policies of the government. And finally, there is an inherent bias in this approach for a highly skewed and hierarchical pattern of income distribution structure, and as such it is totally alien to the widely accepted aim of building a socialist or a more egalitarian socio-economic system in these countries.

5. THE PERSPECTIVE AND SOME SUGGESTIONS

THE situation in the developing countries calls for the continued use of the first two techniques which seek to approach the problem of educational planning from the two opposite ends, viz. the private individuals' demand and the economy's collective demand. A conscious effort has to be made to make an integrated use of the two approaches and evolve an harmonized educational plan. The causes for complexity and the paradoxical nature of the current situation in the developing economies, consisting in shortage of educational facilities and manpower of certain specific skills coexisting with their surplus, lie outside the field of educational planning. They lie in our failure in the field of demographic planning and planning and implementation of economic development programmes.

In the period ahead, in view of the upsurge among people for education and still very meagre attainment in this regard on a per capita basis, tremendous quantitative expansion of education will have to take place and educational planners will have to adjust themselves to such needs of the situation. Any postulation of choice between quantitative expansion and qualitative improvement to each other is premature, misplaced and often intended to restrict education for the narrow privileged strata and retain its elitist character. Qualitative improvement can be brought about only by improving the quality of teachers at each level, providing well-prepared standard textbooks in regional languages, and making more of other needed educational material available. This requires adoption of a more liberal and enlightened employment and wage policy on the part of the public authority so that people with better qualifications are attracted and placed at the appropriate places and suitable norms regarding teacher-student ratio are observed. In addition, orientation courses for the teachers already working should be run at each level in every region.

A more diversified pattern of education with facilities of vocational education of a large variety and intermediate level in both rural and urban areas should be evolved. The serious lags in the expansion of education at the lower levels should be sought to be made up in the shortest possible time.

Efforts for reducing the unit cost of education may be made by more intensive utilization of the installed fixed educational equipment through shift running, and allowing private candidate, correspondence course and multi-point entry facilities wherever and in whichever courses it be feasible. This would help considerably to reduce the pressure for increase in enrolment and make available expanded educational facilities to the desirous.

A considerable wastage of scarce resources is taking place because of the publication of innumerable books by different authors and publishers for each level of education and too frequent changes in the prescribed text-books. Resources can be economized and standard of education improved if the public authority intervenes and sets up groups of experts at each level and in each region to prepare text books, which may be published and retained as prescribed reading material over reasonably long periods.

A scheme of more fruitful utilization of people with different qualifications should be evolved by the public authority. List of such people may be prepared and they be compulsorily assigned to jobs deemed appropriate to them (e.g. medical graduates to rural health centres; agronomists to block or Panchayat level agricultural services centres; technicians as apprentice to public or private sector industrial units etc.)

A basic aim of education being to transform a man into a better human being with a wider horizon, a scientific outlook, positive attitude towards life and work, temporary economic stagnation and slack in labour absorbtion capacity of the economy should not lead to any slackening in our effort to educate the people. Educated people, equipped and eager to work and avail themselves of the opportunities that come their way, are better than illiterate and ignorant people resigned to fate.

Education and Social Change

B. V. SHAH*

RELATION BETWEEN EDUCATION AND SOCIETY

THE EDUCATIONAL SYSTEM of any society is related to its total social system. It is a sub-system performing certain functions for the on-going social system. The goals and the needs of the total social system get reflected in the functions it lays down for its educational system and the form in which it structures it to fulfil those functions.

In a static society the main function of the education system is to transmit the cultural heritage to the new generations. The cultural heritage of any society can be said to be the aims and goals it cherishes as a group, the values and attitudes it considers desirable and the skills and knowledge it needs for the achievement of the goals. In a changing society these keep on changing from generation to generation and therefore , the educational system in such a society must not only transmit the cultural heritage, but also aid in preparing the young for adjustment to any likely changes in them. An educational system geared to mere maintenance of status-quo is bound to become dysfunctional in a changing society; it can foster conformism only upto a particular limit, but beyond that limit it has to foster critical judgement and deviation among them enabling them to accept and adjust to change.

Besides, in the contemporary world "the proportion of change that is either planned or issues from the secondary consequences of deliberate innovations is much higher than in former times" (Moore 1965: 2). This is more so in societies that have newly become independent and are in a developing stage. Consequently in such modern complex societies education is called upon to perform an additional function of becoming an agent of change.

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Thus the relation of education and society in contemporary changing societies has become very complex. The changing society needs a different educational system and therefore forces certain changes in its functions and structure; and as the society increases the quantum of planned change it thinks desirable, it calls upon its educational system to help it to bring it about in a peaceful manner through the socialisation of the younger generation.

This complex and two-way relationship between education and society gets some times manifested in the strikes and riots of students at universities or in organised protests of teachers at different levels to bring about certain changes in the educational system. It sometimes can be observed in the involvement of students and teachers in national affairs at various levels. It can also be seen in the increasing political and economic involvement of the public and government in the schools and colleges as well as in the changes the society attempts to bring about in the structure and functions of the school and college system. All these show a relationship between education and social change which needs to be seriously and scientifically studied. This need is more pressing in developing societies as they attempt to introduce planned change in a big way. India is an instance of such a society.

II

TYPES OF RELATION BETWEEN EDUCATION AND SOCIAL CHANGE

THERE are three ways in which the relation between education and social change can be studied; education may (1) ignore social change and serve as a conserver of traditions, (2) act as a cooperative force in social change or (3) work as an agent of social change.

(1) *Education as a conserver:* According to this view the function of educational institution is to train the intellect, transmit what it is permanently worthwhile in the cultural heritage and adjust the young to society as it is. It regards it only as an institution of learning and is against turning it into an agency of reform. It thinks that such a course, instead of "arousing and developing in the child a certain number of physical, intellectual and moral states which are demanded of him by both the political society as a whole and the special millieu for which he is specifically destined" (Durkheim 1956:71), will prepare him for a millieu that may never be realised.

Besides, controversy regarding which reforms should be inculcated through educational institutions may turn them into a battle-ground of conflicting interest groups. "If one admits the possibility of obtaining through the school social reforms that one likes, one must also admit the possibility of obtaining social reforms that one dislikes. What happens will depend on the popularity of various reformers, the plausibility of their causes and the pressures they are able to exert on the educational system' (Hutchins 1953: 52-53).

Such a view-point can be sociologically acceptable with reference to more or less static societies where change takes a very long time to occur.

(2) *Education as a cooperative force in social change:* The contemporary world is a world of changing societies. Changes that occur in them "are frequent, occur in sequential chains and affect a wider range of individual experience and functional aspects of societies" (Moore 1965:2). In such societies, therefore, an educational system that performs the function of conservation only soon becomes either dysfunctional or undergoes a change in its function as well as structure to suit the new needs. However, it is not called upon to work as a prime mover of social change, but only as a cooperative force. It can deliberately cultivate among children (a) necessary intellectual and emotional dispositions and attitudes for dealing with change in general, (b) necessary technical and social skills and (c) teach them to react to change intelligently when it occurs. It can do this by keeping abreast of social changes and modifying in each generation the heritage it may teach in its schools.

Education is conceived here as an effect of change. Social changes come first and consequently society needs to recast education as a social institution. This may cause numerous adjustments and adaptations within a single educational organization, within major segments of the educational system as well as within the educational system as a whole.

Nature of Social Change and its Implication for Education

The implication of social change for the educational system can be better understood by characterising the nature of social change itself and the direction in which it may have occurred.

(i) *Change in wider social environment:* The change may be in the wider social environment surrounding the society. There may be shifts of political alliances, military invasions, peaceful immigration, trade shifts etc. An economic crisis in England or America has instant repercussions in India or Japan. Economy, health and education are no longer mere domestic matters. The necessity felt in India for retaining the advantage of knowledge of English and of strengthening it as well as for introducing the study of such foreign languages as Russian, Japanese and Chinese is an instance in point.

(ii) *Change in Social goals, objectives & values:* The change may be in social goals, objectives and values. A society may de-emphasize its religious and other-worldly goals like liberation from the cycle of births and rebirths, salvation (moksha) etc. and may decide to lay more emphasis on the secular and this—worldly goals of largest good of the largest number of people through political, economic and social development and by adopting advanced technology and science.

The changes may be in social values, values that directly affect the content of social roles and social interaction. For example, in India under the traditional caste system, men are judged and treated for the most part not according to the same standards but according to the particular caste group to which they belong. In modern India, however, men are being judged more often than in the past according to standards that have nothing to do with their particular caste. This gradual transformation can be characterised as an increasing emphasis on 'universalism' as against 'particularism' (Johnson 1916: 627-28). This may ultimately lead to recruitment of students and teachers on a non-caste basis. The adoption of equality as a value may ultimately lead to compulsory and free primary education, to expansion of primary educational facilities to all children upto the age of fourteen and to providing financial and other aid to backward classes for enabling them to avail of the expanded educational facilities.

(iii) Institutional Changes: The change may be 'institutional' "which includes change in more definite structures such as form of organization, roles and role content. A change from a polygamous to a monogomous system, from an absolute monarchy to democracy, from private enterprise to socialism—these are examples of society—wide institutional change.... The change may occur in smaller social systems also" (Johnson 1961: 628). The adoption of democracy and adult franchise in India have made training in responsible and responsive citizenship absolutely necessary for the electorate. This may ultimately affect the content and the method of teaching in educational institutions as well as the teacher—taught and teacher—principal relationships. The adoption of socialism may require a new attitude to private property, to investment, to spending and profits. A new direction in the political and economic socialization may be expected from the educational system.

(iv) Change in distribution of possessions & rewards: The change may be in the distribution of possessions and rewards. These may be given and received by different persons and groups; different kinds of persons and groups may receive them and they may be more widely diffused or more concentrated. Since rewards and possessions constitute a kind of power, they also affect processes of decision—making and possibly the level of functioning of the social system (Johnson 1961:629). A wider dispersal of economic and political power may bring in newer groups in decision-making positions and may lead to change in the educational system. The rise of groups advocating a change in the medium of instruction at all levels to regional language *vis-a-vis* the groups supporting the retention of English as far as possible is an instance in point.

(v) Change in knowledge and technology: The change may be in the existing knowledge and technology. Space exploration, industrialization, agricultural and domestic technology, transportation and communication,

new understanding of the human organism, individual and social human behaviour serve only to illustrate some of the scientific and technological areas in which knowledge will continue to expand. The teacher cannot know every thing. Instead of teaching certainties he has to start teaching exploration of the unknown. The revolution in our knowledge of 'how we know and how we learn' may alter our educational organisation. Formerly it used to be thought that for knowledge to be transmitted, it was enough to state it. Now this has proved to be wrong. Mere stating it to the learners is found to be insufficient to make them understand it, much more insufficient to induce them to agree, to remember or to act upon that knowledge.

(vi) Change in size & composition of population: The change may be in the size and social composition of the population. The explosion of population, with differential rate of increase in different regions, communities, socio-economic groups and age-groups may necessitate many changes in the educational system. There may be a rising enrolment from pre-primary to higher education and an increasing demand for vocational and adult education; the student and teacher population in primary and secondary education may become more heterogeneous.

(vii) Change in one or more sub-systems of society: The change may be in one or more sub-systems of society, say for example in the economy or polity.

Economy: "Modern industrial technology .... transforms the scale of production, the economic setting of the enterprise and the productive and social role of the labour. It is dependent to an unprecedented extent on the results of scientific research, on the supply of skilled and responsible man-power ready to undertake segment of job in impersonal, segmental human relationships and consequently on the efficiency of the educational system" (Halsey, Floud & Anderson 1962:1).

The occupational structure becomes more diversified and more and more occupations require educational qualifications. Education serves as a source of technological innovation and an instrument for occupational recruitment. It acquires a new function of social selection. It has not only to maintain old elites but also to produce new ones. It has to cater to the needs of masses also as labour assumes a different status. This makes education an important investment. The educational institutions expand in number and scope. The process of democratisation affects their numbership. The selection of students and teachers becomes achievement based. This ultimately influences their curricula as well as the structure and functioning of institutions as going concerns.

This generates conflicts before change occurs. The needs of class and mass education class; controversy arises over whether admission to university education should be open to all or should be restricted; whether admission should be based on intellectual and achievement criteria or on the basis of social criteria. The schools of social and academic exclusiveness such as public schools in India come under increasing criticism and ideas of 'Common School' come to the fore.

Under the circumstance "the process of cultural transmission has to be performed in quite new terms and under new conditions. No longer it is a question of handing on an unchanging or only slowly changing body of knowledge and belief. On the contrary, education has more to do with changing knowledge than with conserving it and more to do with diffusing culture to wider social circles than with preserving and transmitting the particular culture of a particular group" 'Halsey, Floud and Anderson 1962:3).

Polity: The change may be in the political sub-system. The police-state may become a welfare state and adopt newer functions including providing of education to the masses in terms of the existing and changing needs of the society.

In small-scale simple societies education can remain a private enterprise carried out spontaneously in homes or schools run by private individuals without any community or state control. Education in pre-British India was of such a nature. However, in a large-scale complex society the educational needs are diverse and costly. It is necessary to coordinate educational activities in different areas and different levels by some organised control. This can be planned, organised and financed only by the State. Consequently education becomes a matter of state policy, a matter of most serious responsibility of state government. India, for example, has enshrined in its very constitution some special directive principles which are to guide its educational policy.

Thus the idea of a *laissez faire* education, uncommitted and privately organised by community leaders according to their own views and consumed according to pupils' or parents' fancy becomes an anachronism. It has to become a publicly financed and publicly regulated service with planned and coordinated control as it is related to public finance, to man-power demands, to calculation of social demand, to the supply of teachers and other educational support, to future occupations and to changes in the occupational structure.

(viii) Speed of change: Today the speed of social change and human development is much faster than before. This makes the world of children far more different than the world of their parents and creates the problem of inter-generational gap and communication. This necessitates an addition of the study of the past in the curricular for the younger generation and of the study of the present for the older generation through adult education.

Social change and lags in educational system

In response to social change educational system may change. The change may be in consonance with the social change and may meet the new goals and demands adequately; it may be such that it does not contribute to the fulfilment of new goals and demands created by social change adequately. Thirdly, the educational system may resist any change and go its own traditional way. In the second case a lag is created between the goals and demands of the society and goals and structure of the educational system. Our task is to locate such lags and study them in relation to the social changes which may be responsible for them.

Lags in Indian educational system

The fact that such lags have occurred in the Indian educational system today has been accepted by the Kothari Commission very clearly. It reports:

> "As is well-known, the existing system of education is largely unrelated to life and there is a wide gulf between its content and purposes and the concerns of national development. For instance,
>
> —the educational system does not reflect the supreme importance of agriculture which is neglected at all stages ....
>
> —instead of promoting social and national integration and making an active effort to promote national consciousness, several features of the educational system promote divisive tendencies: Caste loyalties are encouraged in a number of private educational institutions; the rich and the poor are segregated in schools, the former attending the better type of private schools which charge fees while the latter are forced, by circumstances, to attend free government or local authority schools of poor quality. (Government of India, Ministry of Education 1966:5-6).

Let us examine specifically some of the lags that have been created in the Indian educational system after independence.

(1) *Lags in good and adequate school buildings:* Efforts to implement the constitutional directive regarding free and compulsory education have brought masses in education. However, a number of villages lack good and adequate school buildings and even adequate number of classrooms and teachers. Single-teacher schools with a single classroom in the form of a covered shed running several classes side by side exist in India even to-day.

(2) *Lags in the time-table:* Britishers introduced an year-round operation for the schools with a summer vacation to suit their needs. Now when the school is spreading to rural areas, this cannot work as village children are needed for assistance in work during the agricultural season. Yet we have continued more or less the same time-table for urban as well as rural schools.

(3) *Lags in gearing education to economic needs:* Changes in Indian economy have created an urgent need to gear education to its manpower

needs at different levels. Education now can become an investment for individual as well as the nation. However, many planners still view it as a simple cost and a luxury on which we can economize. Whenever there is a cut in the plan budget, the axe first falls on the allocation for education and 'only priorities indicated within priorities' are provided for. This attitude can also be observed with private organisers of education. Shrewd businessmen or administrators who are not reluctant to invest in new machinery or in expanding bureaucracy, sit on school-boards, college managements and university syndicates, and veto academic measures that may increase the cost of education.

Whatever gearing of education to economic needs has occurred has been unplanned. Pressure for student enrolment and commercial outlook of many private educational entrepreneurs have led to a much greater proliferation of Arts and Commerce colleges than needed. Temporary shortages and student pressure for enrolment have led engineering colleges to over-recruit and in doing so some may have even compromised their programme. This has created educated unemployment on the one hand and lowered the standards on the other.

The lack of diversified vocational courses at the secondary and higher secondary level, visible persistence of wide differences in both monthly and life-time incomes associated with school and college level education (whether vocational or general) and requirement of a degree rather than relevant specialized knowledge and competencies for many government jobs have led to a blind rush for graduate and post-graduate degrees. An ironical situation has been created. When cities are overcroweded with doctors of all sorts, rural areas cry out for elementary medical assistance and while thousands of young engineers are unemployed, engineering industries are short of middle level trained technicians.

(4) *Lags in curricula:* As education has become increasingly practical, the liberal arts curriculum which used to be effective as a means of inculcating liberal values at higher level has lost status relative to other curricula. However, we have failed to devise other ways and means to inculcate new values in pupils in the context of which they should view their training.

Today the primary and secondary student population has become more heterogeneous in terms of aspirations, ability, socio-economic background & rural—urban upbringing. The needs and ability of these different groups are different and sometimes the margins are very wide. Yet we go on with only one curricular programme with hardly any variation in the teaching and evaluation methods.

Though children of the lower socio-economic groups have increased in schools, the innovations that are being encouraged and supported are those that aid middle class college—bound students. For example, discussion method is being introduced, while the increased drop-out rate among students belonging to lower socio-economic groups goes unnoticed.

(5) *Lags in educational continuity and teacher training:* The explosion of knowledge makes it difficult for one man to know everything in his subject. This necessitates refresher courses for teachers and technical employee at all levels. The concept of continuing education also becomes relevant.

Even an elementary school teacher needs something more than a short and unspecialized education that he gets at present. Over and above a broad liberal education, he needs a much longer professional training.

(6) *Lag in evolving a common communication medium:* The need to teach children in their mother-tongue at all levels has been recognized, but the efforts to realize these objectives are partial and halting. We have the strange phenomenon of students studying through regional medium upto graduation required to learn through English medium at the postgraduate level. Where they are taught through the regional medium at the postgraduate level, they are required to read books in English as no books of this level are still available in the regional medium. And even when the number of students who have learnt through the regional medium swells, English still remains the medium of instruction in a significantly large number of higher educational institutions.

Besides, the medium for transactions of political, administrative, legal and economic processes in the country still continue to be English. "Thus a peculiar dichotomy has emerged in India ... emergence of a new class of elite, trained in English and close to all key and strategic decision—making positions, contraposed to another class of the elite equipped with education in vernaculars, occupying subordinate positions in the hierarchy of offices" (Desai 1967: 121). Education thus continues to be still a powerful instrument for perpetuation of inequalities.

(7) *Lag in provision of sound vocational guidance:* The rapidly changing economy as well as technology have created a need for sound and reliable vocational guidance to pupils as neither pupils nor parents can have the capabilities of fulfilling this role efficiently. However at present we have only rudiments of vocational guidance.

(8) *Lags in the organization of education:* While our society has very rapidly assumed a national character, the economic support for education has partially remained at the local level. Because of the limited finances in several States, the government has left secondary and/or college education wholly or largely to private enterprise and have allowed it to function even at the primary level along with the public enterprise. This, on the one hand, has led to operation of parochial loyalties jeopardising the universalistic and achievement based functioning of educational institutions and on the other hand has led to great disparity and unevenness in the provision of facilities and conditions of work for students as well as teachers.

To subject public education to local and private control will be to subject it to private politics and parochial prejudices which may vitiate its universalistic nature. Thus ascendence of some form of national control over education, whether in the form of a Central Education Department, State Education Department or a national or State level Education Board comprised of professional educators is a necessity. However, such efforts today are still regarded as 'political interference in education,' 'effort to regiment or a threat to democratic control over education.'

Thus the study of lags in the educational system in relation to the social changes that give rise to them will enable us to locate the forces that hinder the resolution of lags as well as indicate the direction in which the system should be structured.

(9) *Education as an agent of Social Change:* This view regards that education can engage itself in much more positive action and can rebuild society by inculcating in the young a programme of social reform. It regards those who assume change as universal and inevitable as wrong. As Brameld says they,

> '...... overlook the supra-individual nature of many forces and institutions such as socio-economic classes, mass-media, pressure groups and other centres of power in society. (They) understate the persistence and recurrence of cultural patterns and therefore over emphasize the novelty of history, opportunities for unplanned change and the inevitability of progress' (Brameld 1955: 183-189).

They do not see, therefore, that broad social change must be planned rationally and executed firmly so that reactionary pressures can be eliminated and specific goals may be achieved. This view, however, is sociologically not acceptable for several reasons; (i) the future of any society remains very uncertain and it is impossible to chart it in details; any realized reform is always a product of compromise and mutual adjustment of various forces in society; (ii)deeply entrenched cultural patterns mould the way in which people conceive and implement change; for example, changes brought about by industrialization in the west may not be repeated in the east; (iii) indoctrination of a reform programme may interfere with the free play of child's intelligence and limit his growth and being a programme not approved by the society yet, may alienate the child from his culture;(iv) in order to be an agent of change, education must determine the rate and direction of techno-economic change and not be determined by them; however, this is not possible for education as other forces are more pervasive.

A number of sociologists, educationists and anthropoligists also are of the view that education must be a cooperator in social change rather than a prime mover in it. Warner says, "As long as we have our present social structure, education must be adapted to it or we will produce a generation or more of maladjusted children and unhappy adults" (Warner 1944: 143). Ottaway argues that education can produce changes in culture and society only under orders from those in power. "(Education) is a force which supports and develops the changes in social aims already decided by those in power, but it does not initiate the changes" (Ottaway 1953: 56). Dewey also says the same thing. He envisages three choices for the educators in face of social changes; they 'may drift' according to him or may observe 'the newer forces that are producing change in the old order', estimate 'their direction' and 'see what can be done to make schools their ally', or may become 'Intelligently conservative' (Dewey 1937: 235-237).

Thus in complex nation societies education can neither be regarded as a mere conserver nor as an agent of social change. It can only be regarded as a cooperative force in social change brought about by more pervasive forces in society.

Though education cannot be a prime mover in social change, changes in educational system brought about by social forces may thesmselves affect other sub-systems and institutions in society and bring about some change in them. For example, introduction of a modern open system of education by the Britishers in India affected the rigid stratification to a certain extent and provided mobility to some people irrespective of caste; or introduction of liberal curriculum and through it inculcation of liberal ideas of democracy, equality etc. had its impact on the authoritarian mores of the family and developed individuation leading to a change in relationship between parents and children, husband and wife and near and distant kins. However, this impact of eduction is only secondary and can be regarded as a result of its cooperative role.

III

The task for the social scientist then in studying the relation between education and social change can be outlined as follows:

(1) to understand the nature and direction of social change;

(2) to study how and why change is imposed on the educational system by change in other sub-systems and institutions of society;

(3) (a) to find out whether the educational system drifts ignoring social change or becomes a conservative force resisting social change or develops into a cooperative force in social change,
   (b) to locate areas in which it drifts or acts as a conservative force or develops into a cooperative force in social change and discover lags if any and
   (c) to locate social needs and forces that make it so and

(4) to study the impact of changes in educational system on other sub-systems and institutions.

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Recent Trends in the Strategy of Educational Development

SATISH CHANDRA*

THE DEVELOPMENT STRATEGY in the field of higher education chalked out by the Education Commission in 1964 had made a number of projections largely on the basis of a steady growth rate of the Indian economy at about 7% till 1976, thereafter at 8% for the next decade. The growth rate for higher education had been correlated to the likely requirements of trained manpower in various sectors on this basis. However, it became apparent some time back that the growth rate postulated in the Education Commission's report was far removed from reality. As a result, the intake of students in professional courses was reduced. But no such exercise was carried out for the Arts, Science, Commerce education, which on an average expanded at the rate of 13% between 1964 and 1971. During the same period, the number of universities grew from 62 to 85 and Arts, Science and Commerce colleges from 1418 to 2798.

The cut in the professional education was restored as it was realised that availability of adequate trained manpower was vital for any developing country and that temporary ups and downs of the economy must not be allowed to dictate the long-term provision of trained personnel. Thus, the strategy of educational development in India has to be assessed in the context of the wider developmental needs of the country, and the immediate or the short-term employment opportunities which, in turn, are linked to the growth of the national economy. From the view point of the long range developmental needs of the country, there can be little doubt that the proportion of trained manpower in India in the field of higher education is extremely inadequate, as compared to the proportion of people engaged in higher education and research in developed countries of the world, as also the developmental needs of the country. The proportion of enrolment of students in higher education per 1000 population in some of the leading countries is as follows:

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*Vice-Chairman, U.G.C.

Table I

Enrolment (Higher Education) and Population

Country	Population 1968 (in 000's)	Enrolment 3rd level (1969)	Enrolment/ 1000 Population
U.S.A.	201,152	7,916,901	(39.4)
U.S.S.R.	237,798	4,549,600	(19.1)
Japan	101,080	1,631,319	(16.1)
France	49,920	615,326	(12.3)
Great Britain (after 14-16 years of schooling)	61,973	417,736	(6.7)
India (a) (1969)	532,742	1,792,700	(3.4)
(b) (1973)	592,213	2,246,988	(3.8)

It should be borne in mind that the present figures of students enrolled in the field of higher education in India are somewhat unreal because of the poor standards attained by a large majority of students at the first degree level. A better criterion for our purposes would be to take into account only the students doing advanced level work viz., those working for their Master's degree or engaged in research. While there has been steady growth in numbers, even here the numbers have been attained to some extent by corrosion of standards:

Table II

	Postgraduate		Research	
	1964	1973 (Estimated)	1964	1973 (Estimated)
Students enrolled in Universities and P.G. Centres	44,560	108,326	6,134	16,237
Students enrolled in Colleges	39,601	109,489	970	2,529
TOTAL	84,161	217,815*	7,104	18,766

(*This works out to 0.4 per 1000 population).

Considering the rate at which new fields and sub-fields have been developed and which have to be related to the developmental needs of the country, the number of specialists working in various fields in India is even more inadequate. Only recently a noted French biologist observed: "There are several hundred endocrionologists working in Paris. How many of them are to be found in Delhi?" We are keen to develop programmes of collaborative research between our Institutions and Institutions from the leading countries in the world. However, the same problem comes up every time: while there is a super abundance of graduates, there is an acute shortage of trained personnel in various specialised fields. As a result, programmes of collaborative research tend to degenerate into programmes of training or soliciting technical aid!

Thus, we are faced with three separate problems: (1) the problem of providing adequate trained specialists in various specialised fields; (2) the problem of controlling admissions particularly at the undergraduate level in Arts, Science and Commerce in the immediate context while gearing the infra-structure for the developmental needs of the country in a long perspective and (3) improving the employability of the products. It will be seen that some of these objectives can be contradictory or, at any rate, a careful provisioning of priorities and resources is needed so that some of the objectives stated above are not reduced to mere paper objectives.

It is generally believed that the only way in which we can train high level specialists in a situation of scarce resources is to concentrate financial as well as human resources at a few selected points. It has been argued that the unwillingness or the inability of the university system to do so is a major reason why it has been unable to carry out high quality research. Without in any way denegrating the record of work of the various national laboratories, I would like to say that the quantum and quality of research work done by the universities is not unsatisfactory particularly in relation to the human and material resources placed at their disposal. Despite various limitations, the universities have been able to fulfil their dual task of providing trained manpower and adding to knowledge. However, it is also clear that sustained efforts are necessary to raise the general level of research in the universities and colleges. Effort has also to be made to link research with national developmental needs. At the same time, special facilities will have to be created at selected points for tackling identified problems. The new pay scales accepted by the Government at the instance of the University Grants Commission and the further stipulation that the minimum qualifications of a new entrant in the university should be a Ph.D. and in the case of colleges a pre-Ph.D. or M.Phil., should go a long way in raising the research potential in the universities and colleges. It will, of course, have to be supplemented by research facilities which, even if marginal, would help to raise the efficiency of the present system. The question of concentrating resources at selected points needs some further thinking. I am not in favour of a strategy which ties bulk of our available resources for research to a small number of prestigious departments in an effort to create peaks of excellence. For that might well mean that the rest of the system would remain a sea of misery! Experience suggests that in such cases the sea will topple the peaks at some point of time. Our aim should rather be to create multiple stages of development so that institutions at various stages of development could aspire to a higher stage. The guidelines to the universities for their Five Year Plans have tried to set out a strategy whereby this could be achieved.

With the raising of minimum qualifications of teachers, efforts will have to be made to raise the quality of training provided at the Ph.D. level in our universities and colleges. This might need introducing course work and devising procedure to weed out the inefficient workers. An M.Phil. programme in universities which have been able to develop strong postgraduate teaching-cum-research departments has also been visualised. However, it has to be concretised further.

Regarding admissions, a broad strategy in this connection has been set out by the Planning Commission and Ministry of Education. The strategy visualises streaming off 50% new admissions into non-formal education[1] and providing seats for the remaining 50% in the existing universities and colleges. "As is well known at present 50% of the colleges have less than 500 students; 25% between 500 and 1000; 20% over 1000 and below 2000; 5% over 2000 ... if the present average enrolment of 800 per college is raised to 1000, the present system can enrol 4 million students.[2]" Even though this solution is somewhat simplistic, if the total number of new seats to be provided during the Fifth Plan is roughly 2.31* million apparently on the basis of 8% growth rate, it is obvious that 2 million additional seats can easily be provided in the existing colleges. The Planning Commission has therefore visualised that new universities and colleges are to be opened only for identified purposes, such as catering to backward areas, new types of programmes etc. The annual growth rate for admissions was also to be brought down from the present 8-9%. The question of not making a university degree a minimum qualification for various Government jobs which is under active consideration, the 10+2+3 etc., were parts of this strategy. The above strategy which has been in operation for the last two years has certainly had an impact on student enrolment as will be obvious from Table III.

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[1] "Effort should be made to meet 50% of the demand for additional facilities in regular institutions, 20% through evening colleges, 20% through correspondence courses and 10% through private study."

..................Fifth Plan Document

[2] I. C. Menon : Some Aspects of Planning for Higher Education in India : Quantity Versus Quality, *New Frontiers in Education,* Volume 4, No. 1 January–March 1974 ... p. 62

*CABE Report—1972.

Table III

Growth Rate in University Enrolment

Year	Total Enrolment excluding Pre-Univ./Intermediate/Pre-Prof.	Actual increase over the preceding year	Percentage increase over the preceding year
1969-70	1,792,700	—	—
1970-71	1,953,640	1,60,940	9.0
1971-72	2,065,041	111,401	5·7
1972-73	2,141,751	76,710	3·7
1973-74	2,246,988	105,237	4·9

While some of the decline may be attributed to the enforcement of the 10 + 2 + 3 system in some of the States, the fact that the growth has declined in terms of absolute numbers is also significant. As far as the growth of colleges is concerned, the chart is rather uneven as will be obvious from Table IV. However, there is a decline of the growth of new Colleges per year from 202 in 1972-73 to 123 in 1973-74—a sharper fall than in any of the preceding seven years.

Table IV

	(Arts, Science, Commerce)	
Year	Colleges	Annual Growth
1964-65	1,615	
1965-66	1,769	154
1966-67	1,915	146
1967-68	2,054	139
1968-69	2,219	165
1969-70	2,361	142
1970-71	2,587	226
1971-72	2,798	211
1972-73	3,000	202
1973-74	3,123	123

Effort had been made to revise and up-date the syllabi and also link them with the developmental problems of society and of the country.

Towards this end, the report of a committee set up by the U.G.C. on orienting colleges towards rural problems has been received and steps are being taken to implement it. The question of work experience/field experience/practical work has also been looked into. I would like to admit, however, that this is a field in which we are still groping. This is a problem which has been agitating the educationists in leading countries of the world and various experiments are under way. We are studying them with a view to assimilating those which are relevant for our purposes.

A careful strategy of planning might enable us to mitigate to some extent the scarcity of developmental resources which will apparently continue in the Fifth Plan. The educational budgets of the Central and State Governments have been eroded in a number of ways. Despite the Fifth Five Year Plan ceilings having been accepted, budgets are dependent from year to year on the availability of resources. This makes it difficult to allocate resources on a planned basis. The inflation from which we suffered during 1973-74 has already eroded the real value of the budgetary resources. It is difficult at the present stage to visualise the position during the coming years. In this context, the somewhat artificial division between plan and non-plan funds which is made at present might need some re-thinking so that all existing resources can be utilised in a more meaningful manner for academic development.

Agricultural Sciences and Higher Education in India

G. RANGASWAMI*

HIGHER EDUCATION IN India is nearly four centuries old; the Jesuit College in Goa was perhaps the first to start in 1575 and another College in Baroda the same year. The first three Indian Universities at Madras, Bombay and Calcutta were established in 1857. Several decades later, early in the present century, during 1900-1910 five Agricultural Colleges at Coimbatore, Nagpur, Kanpur, Poona and Allahabad were started to offer collegiate level education in professional agriculture. Prior to this a few institutions were set up in different parts of the country to offer diploma, certificate and licenciate courses in Agriculture. One of the earliest of such institutions was set up in 1876 at Saidapet near Madras, which got merged with the Coimbatore Agricultural College in 1907. The graduates passing out of these institutions were mostly employed as extension workers in Government Agriculture Departments. The British rulers brought in a few new ideas in agricultural science from the United Kingdom and test-verified them for adoption under Indian conditions, for which purpose they organized a few research centres; perhaps the earliest one to be set up was at Pusa in Bihar State, which later got shifted to New Delhi during 1920s. The Indian Agricultural Research Institute at New Delhi has been serving as a leading postgraduate research and training centre, by far the biggest in the East. Over the past half a century and more it has trained a large number of agricultural scientists who have played and continue to play leading roles in the development of scientific agriculture in the country.

Recent Developments: Since Independence there has been a rapid growth in higher education in Agriculture in India. As against 18 Agricultural Colleges with an approximate admission strength of about 1,000 students per year in 1951 there exist today 73 Agricultural Colleges with an annual admission strength of about 10,000. As against eight Veterinary

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Colleges admitting annually about 400 students in 1951, to-day there are 20 Veterinary Colleges with an admission strength of about 1,100. During the past 20 years, eight Agricultural Engineering Colleges have been set up in different parts of the country with a total annual admission strength of about 250 students. There is one Fisheries College with an annual admission strength of 40 and seven rural oriented Home Science Colleges attached to the Agricultural Universities with an annual admission strength of about 800 students. The Forest College and Research Institute at Dehra Dun and the Southern Forest Rangers College at Coimbatore are the two main centres imparting higher education in Forestry in India. There has also been a rapid growth in Post-graduate education leading to Master's and Doctoral degrees in some branches, at a few selected leading institutions in India. As against only four institutions admitting about 150 candidates for Post-graduate degree/diploma courses in 1951, to-day we have 36 Colleges offering Post-graduate courses to nearly 1,500 students of whom nearly 200 are registered annually for Ph.D. degrees.

Today there are about 80,000 Agricultural graduates of whom about 10,000 are Post-graduate degree holders in India. Similarly, there are about 10,000 Veterinary graduates of whom about 800 are Post-graduate degree holders. Only a limited number of Agricultural Engineering graduates are taking up Post-graduate studies, whereas a fairly good percentage of Home Science graduates undertake post-graduate studies leading to Master's degree.

Of the nearly 20 lakh students who are enrolled in more than 3,200 colleges in India, about 46% are in Pre-University classes, 47% in degree classes and the rest in post-graduate classes. Of the total number, about 69% study mostly general subjects and 31% study professional subjects as part of their curricula. Of those studying professional subjects, about 31% study Engineering and Technology, 22% get training as teachers, 23% in Commerce Colleges, 11% in Medicine, 4.7% as Lawyers, 4% in Agricultural Colleges and about 1% in Veterinary Colleges. Thus it would be evident that our educational programmes will have to be more balanced than at present so that it could contribute increasingly to the nation building task ahead of us. One of the major steps taken in recent years is to organise Agricultural Universities, at least one for each state, to emphasise the importance of scientific development of agriculture in the country.

Setting up of Agricultural Universities: Soon after Independence, the University Education Commission headed by Dr. S. Radhakrishnan brought out in its report in 1949 the need for orienting Agricultural Education in India towards solving farmers' problems and recommended major modifications in the curriuculum for higher education in Agriculture so as to ralte such an education to rural development. The ways and means of implementing the recommendations were examined by successive High Level Expert Committees appointed by the Government of India. The first joint Indo-American team headed by Shri K. R. Damle (1955), the second joint Indo-American team headed by Dr. M. S. Randhawa (1960), the Agricultural Research review team headed by Dr. M. W. Parker (1964) and the Education Commission headed by Dr. D. S. Kothari (1966) have all brought out the role Agricultural Universities could play in achieving the objectives emphasised by the Radhakrishnan Commission. The first blueprint for Agricultural Universities in India was prepared by Dr. H. W. Hannah (1956) which was further refined by an expert committee headed by Dr. R. W. Cummings (1962). The concept of Agricultural Universities in India was evolved on the basis of the success achieved over the past one century and more by the Land Grant Colleges in the United States of America, in which country rapid industrialisation could take place through intensification of farming practices on scientific lines. The first Agricultural University in India was inaugurated in 1960 at Pantnagar in Uttar Pradesh by Pandit Jawaharlal Nehru. Since then 19 more Agricultural Universities have been set up, one in each state, except four in Maharashtra. Two more Agricultural Universities are expected to be set up in Uttar Pradesh in the near future. The Indian Agricultural University at New Delhi has been given the status of a 'Deemed University'. Thus, out of 104 universities inclusive of the "Deemed Universities, nearly one fifth of them are fully devoted to development of Agriculture and related fields, covering almost the entire length and breadth of the country. While the Agricultural Universities are much smaller when compared with the student enrolments of the Conventional Universities, the objectives and responsibilities are much different.

Objectives of Agricultural Universities : The scope of Agricultural Universities covers Plant Science including Horticulture, Soil Science, Agricultural Economics, Rural Sociology, Agricultural Engineering, Home Economics, Animal Husbandry and Dairying, Veterinary Medicine, Fisheries, Forestry and several other related branches of Basic Sciences and Humanities. The objectives of these Universities are three fold, *viz.*, (i) imparting collegiate education leading to under-graduate and post-graduate degrees and short duration diploma and certificate courses in various branches of Agricultural Science, (ii) Research work in every branch of Agricultural Science involving utilisation of natural resources of soil, water, energy and other agro-climatic factors to produce food, feed and fodder and on their economic utilisation, and (iii) Extension education to disseminate scientific knowledge in different branches of Agricultural Science for the benefit of the common man, particularly that of the farming community. The distinctive features of the Agricultural Universities as given in the Cummings Committee Report are:

(a) Each Agricultural University recognises a responsibility and is responsive to the needs of cultivators in contrast to be only a seat of learning and scholarship; it assumes a responsibility for work towards the economic development as well as the improvement of living standards of the people.

(b) In an Agricultural University, the teaching staff, in addition to having a responsibility for resident instruction, will also have a responsibility for applied as well as fundamental research in Agriculture; such research is not merely limited to the laboratories and experiment stations, but goes beyond, into the fields and homes of the rural people living under varied conditions in different parts of the state.

(c) The curricula and the training programmes in the Agricultural University are modelled in a manner as to be in keeping with the needs of the state on one hand, and with the aptitudes and needs of the students on the other; this means that the curriculum is flexible and is capable of being offered in the form of specialised courses covering a wide ground of subject matter.

(d) The chief medium through which the farmers derive the benefits of progress in agricultural research and education, under the Agricultural University, is the extension organization of the University which is for that purpose fully integrated with the teaching and research organizations; this ensures a smooth and effective flow of the results of research and the benefits of the training programme to the farm population and in return ensures easy transmission of the problems of the farmers to the research staff so that they can be tackled promptly and effectively, and

(e) The territory of the Agricultural University in respect of agricultural and related sciences includes the entire state in keeping with the principles and responsibilities stated above.

The objectives of the twenty Agricultural Universities so far set up in India, therefore, differ significantly in many respects from those of traditional or conventional, affiliating or residential types of universities. These twenty universities are in different stages of development and not all of them have fully achieved the main objectives. There have been and in most cases continue to exist, several hurdles in the pathway for development of these universities. While some of the Universities have built-in capacity to overcome the hurdles, the others have to gain experience with time, emulating the examples of the more successful ones. It may be stated, in this context, that as these universities grow: (i) more of integration of teaching, research and extension education within the university is expected to take place; (ii) State-wide research responsibility in different branches of Agricultural Science, in support of the developmental activities of the State Government would rest with the university; (iii) the extension programmes of the State Government would be closely linked to the University's extension education programmes; and (iv) the required leadership and in-service training for strengthening each of the developmental activities in the State would be provided by the university. In the course of next few years, an Indian model for Agricultural university with the required details on infra-structure, administrative set up etc., would emerge. Such a model would not only be much different from the conventional or traditional university in India, but also different from the Agricultural universities in other parts of the world.

Teaching: The teaching programmes in the institutions attached to the Agricultural universities have undergone a dramatic change over the past fifteen years. Invariably each one of the universities has introduced either trimester or semester system of education which involves continuous assessment of the students' learning capacity while studying a course and it also avoids the annual university examinations and external examiners. As a result there has been a significant change in the students' attitude towards the learning programme, as also of the teachers in imparting knowledge to the students. Since each teacher is to carry out research work or extension education work besides his teaching responsibilities, he is continuously improving his professional competence, with the resultant improvement in his teaching quality. There has also been a continuous improvement in the pattern of internal assessment wherein the teacher has been gaining more of the confidence of the students and *vice-versa*, so that the ills of the traditional system of annual university examinations are reduced. One of the major steps in support of this is to return the valued answer books to the students within a few days of the examination or test, together with the corrected answers and the weightages for each of the answers. The examination itself is utilised as a means for additional teaching of the students. Some universities have been facing difficulties in fully implementing the trimester or semester system of teaching and certain revisions are being introduced to the original regulations. It is expected that in the course of next few years, each Agricultural university will develop its own system of teaching programmes and rules and regulations for internal evaluation of the students, to suit the local needs.

Research: One of the advantages given to the Agricultural universities in India is to integrate fully research activities in different branches of Agricultural Science, in its broad definition, stated earlier. While in State and Central Governments the departments of agriculture, animal husbandry, fisheries, forestry and rural development, work in isolation, in the Agricultural universities the research activities could be fully integrated for effective and economic utilisation of soil, water and other natural resources for the production of various annual and perennial crops including horticultural crops, animal and its products including poultry meat and eggs, production of fish and also forest plant species for fuel and other raw material for forest-based industries. The economic use of these natural resources for producing the material as to bring maximum profit to the farmer is the main aim of the integrated approach. Field-oriented, project-based research with inter-disciplinary approach is possible in the Agricultural universities, because the various branches are functioning under one agency. The Indian Council of Agricultural Research which co-ordinates most of these activities, further strengthens the Agricultural universities, keeping in mind the overall interest of the nation. The research works carried out so far in these Agricultural Universities have yielded rich dividends and more benefits are expected to flow in the coming years.

Extension Education: Unlike the traditional or conventional universities, the Agricultural universities are to produce the required number of professional graduates and also research data and extension information with a need-based approach. These universities cannot afford to produce either too many professional graduates who would add to the already overloaded unemployment problem of the country and also cannot afford the luxury of carrying out fundamental studies which are of not immediate application in the field. Therefore, the research results should be of immediate utility and the same should be transmitted to the farmers' fields and doorsteps without loss of time or of quality and quantity. For this purpose a strong extension education programme together with a modern communication centre are essential. These would serve as a link with the State Government development departments and the farmers of the state, so that the results of research work readily flow through and the problems of the farmers are quickly brought back to the University's research laboratories.

In order to guide the activities of the universities to achieve the main objectives, in the Board of Management of each university, the Heads of development departments of the State Government, the Government Agricultural Secretaries or Development Commissioners as also leading representatives of different branches of Agricultural Science are included as its members. With such an infra-structure and well-defined and specific need-based approach it should be possible to make these universities the main centres from where new information for the developmental activities in every branch of Agricultural Science emanates to bring benefits to the common man in India. The Agricultural universities deserve every support in all their activities in the cause of the farmers of the Nation.

Education and Dynamics of Development

GUNVANT B. SHAH*

THERE IS A story about an old farmer who was visited by a young soil expert who told him how he could improve his crop production. The young agronomist was somewhat peeved when the old farmer did not appear to be taking down these suggestions. "Don't you want to learn how to improve your products?" asked the young man. "Shucks", said the farmer, "I am not doing half as well now as I know how."

One of the preconditions of social change is that a man behind the plough should also change while the plough continues to change. It is the business of education to bring about such a change. Gunnar Myrdal has popularized the recent economic theory of 'Investment in Man'. Economic historians have consistently paid a great deal of attention to education and educational reform while seeking to explain why the rate of economic development has varied in different epochs and in different countries. Japan has long acted on the belief that educational improvement would help it to emulate the industrial progress of the west. The French were inclined to trace their defeat in the war of 1870-71 to the superiority of German training programmes, especially in the vocational and technical field and this belief helped to bring about a reform of the French educational system. Education thus contributes to improvement in what Myrdal calls population quality.

We are a nation of 550 million people and manpower is our greatest asset. Even a small increase in a person's efficiency would bring up production to a considerable extent. That the quality and the type of education are closely linked with a person's productivity is not easily recognized by many. Debeauvais in his *The concept of Human Capital* has said: 'It might seem somewhat surprising that such a commonsense hypothesis (that education can raise productivity of workers) should not have been accepted by economists until quite recently.' The world, in a manner of speaking, spend $ 100 a year to teach a child how to read and , a little later on in life, $ 7,800 a year to teach him how to shoot. These figures correspond respectively to the amount spent annually on the average school pupil and the average soldier. The world as a whole spends $ 1,10,000 million for public education and $ 1,59,000 million, 40 percent more, on armaments every year. While it is the developed countries that devote the most to military hardware, their education suffers the least as a result. They can still find $100 per capita for schooling as compared to $ 5 in the developing countries where education is needed the most.

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Development, in the last analysis, is human development. Development, it should be understood, is a multidimensional concept and it should not be equated with economic development. A man in the street fails to appreciate the potency of education as a lever to improve population quality. Thomas Jefferson perhaps attempted to strike a balance when he said: "People generally have more feeling for canals and roads than education. However, I hope we can advance them at an equal pace". The idea that education, at every level, is the key to the abolition of poverty, is described by Hodgson as 'So revolutionary that if social scientists had more self-confidence they would call it a discovery.'

The Indian University in the 80's and 90's

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WHILE ABSOLUTE STABILITY in terms of social and economic structure cannot be claimed for any country, it would certainly be possible to make international comparisons in this regard. India belongs to the category about which any claim to stability would be untrue and even misleading. This is because she is placed in a situation very different from the one in which, say, countries like the USA and the USSR, are placed. In these two countries though different systems of government prevail, there is a certain kind of stability and, to that extent, predictability in regard to what can happen tomorrow would be possible. This stability in turn depends upon a certain alignment of productive forces and classes. To say that no changes in regard to these matters are likely to take place in these countries in the next few decades would be incorrect. But it is reasonable to affirm that the parameters of these changes are to a considerable extent already defined. Outside those parameters not many changes are likely to take place. Such a statement cannot however be made about India.

In a sense, India is ready for a change. But how long will it take before there is major social upheaval is a matter about which no one can be certain. In terms of history even half a century is not too long for a thrust in the direction that a country is likely to take. Those of us who are alive at this moment feel impatient with the pace of change. Maybe this was also the feeling of people who, for instance, lived through the pre-revolutionary France or the pre-revolutionary China. Pressures for change, as one can see in retrospect, were building up in these countries over a long period of time. Sometimes, these were perceptible. And sometimes these were not. But building up they were, slowly, gradually and inexorably. Something of the same kind is happening today in India also. Pressures are building up for a change but the direction of the change is uncertain, if not also unpredictable. In plain words, it is not possible to anticipate what kind of a change will take place. Only two things can be said with certainty. One, some kind of a major change will take place, two, how late or soon it takes place is a matter which cannot be determined with any accuracy.

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The first of these two statements however needs to be qualified somewhat. Change in the Indian situation may not prove to be particularly radical or thoroughgoing. There is not much in the recent past of India to suggest a tradition of violent or drastic change. For centuries a kind of passivity has characterized the Indian scene which it is possible to explain but not so easy to justify. Quite a few elaborate attempts have been made to explain the causes and nature of this passivity. It is not necessary to refer to any of them here for the simple reason that the fact of the passivity is not disputed. What is at dispute is the source and the character of it.

It is possible to argue, as has been done by several thinkers, that passivity in the past need not mean passivity in the future. What needs to be specified here however is the span of the future that one is referring to. If one talks of the next 5 or 10 years, it is possible to talk in somewhat precise terms. What happens after that is highly uncertain. This is because of the basic instability of the system that prevails in India today. There is discontent and frustration all around but it is not assuming the dimensions (or direction) of a movement. In the absence of a clearly identifiable movement pressing for a change in a certain direction, the only reasonable thing to infer seems to be that while there would be shifts and compromises, the basic character of the system would stay unchanged.

The case for a change is however overwhelming. Not only is the basic social and economic structure stagnant, demographic pressure is intense and unremitting. In other words, were it a static situation things could have continued, as they are, for a long long time. But here is a situation where nothing else has to happen except that some more time should pass and things will automatically get worse. There would be more people to feed, to clothe, to educate, to look after and this, in turn, would generate pressures that would not permit the polity to remain stable. The pressures for change are thus irresistible; only the will and the means seem to be faltering.

In this highly unstable situation it becomes difficult to project into the near future in a meaningful manner. Not to do so however would be as unrewarding an exercise as to build a whole structure of speculations in regard to the shape of things to come. The difficulty becomes all the more apparent when one has to speculate about the future of the Indian university. This is mainly for two reasons. The Indian university today is very much a part of the social and economic situation which is so very unstable and uncertain. Secondly, despite a tradition of more than a century the Indian university has not got stabilized as a social institution. Nor has it got indigenized in any meaningful way. The university scene is therefore even more uncertain and confusing than it need have been otherwise.

II

Developments since 1947 have served to underline two features of the Indian university which make its continued survival in its present form somewhat doubtful. One is largely a matter of definition. What is it that constitutes a university? On what level of performance does it function? What category of students does it seek to serve? All these are matters which are defined somewhat differently in India as compared to other countries.

In countries where the university tradition is strong, the average age of entry is 18+: In certain countries it is even 19 or 20. Students joining the university have usually had good schooling and are on the whole mature in their thinking. In India however the average age of entry is 15 or so. Only one third of Indian universities insist upon a student being 16 years old at the time of entry. The rest do not insist upon even that. That is why it is safe to say that the average age of entry in an Indian university is 15. Not only have these students not had good and sufficient schooling, they are most decidedly immature in their thinking and outlook. Consequently, the kind of work that they do in the first couple of years at college is the kind of work that students in other countries finish at school.

Because of this looseness of definition of what constitutes university education, the Indian situation is somewhat disconcerting. In the year 1974-75 something like 3.5 million students were enrolled in the universities; only 6% or 7% of whom were pursuing a postgraduate course. Broadly speaking, it is at the postgraduate level that Indian students do what is usually done at the undergraduate level in advanced countries. From one point of view, thus, the university system has 3.5 million students. From another point of view it has only 0.2 million. Which of these two figures should be regarded as relevant to the argument under discussion depends upon the yardstick that one chooses to apply.

The problem is not one of looseness of definition only. The real problem is why hordes of students enter college knowing full well that a college degree is not going to get them a job. The rate of expansion over the last decade or so has been about 12-13% per year. There is hardly a year when it is less than 10%. No other country in the world has had a rate of expansion higher than 5-6% per year. Because of the extraordinarily rapid rate of expansion in India, economic standards could not but get diluted. Even when financial resources for this rate of expansion are available—and these are not—the availability of the right kind of teachers is such a severe constraint that no way has yet been found to overcome it. No wonder that the quality of teachers has been deteriorating sharply over the years. Today the situation is somewhat like this. Almost half the teachers who are in position today would have been rejected for these very jobs even ten years ago. But with every year that passes the bottom of the academic barrel is scrapped more and more desperately and those who were regarded as ineligible yesterday are not only declared eligible but are found to be satisfactory and even competent. The country is fast approaching a situation when, on the analogy of a concept in economics, bad teachers will push good teachers out of circulation. This process is to be seen at work already in certain institutions. Before long even the so-called good institutions will feel devitalized and empty of academic content. This is as much true of post-graduate education as of undergraduate education. Indeed in certain universities even the Ph.D. degree has been devalued to an unpardonable extent.

To draw a line of distinction between undergraduate and post-graduate education is not simply a matter of having the right kind of definition. The issue is much more complicated and has unmistakeable social and economic dimensions to it. It is also linked up with the social and academic status of university teachers. More than anyone else, it is the teachers who are in favour of the existing system. With wages being generally low and scarcity of jobs being a chronic feature of the social scene, those who are in teaching have come to develop a vested interest in favour of whatever exists today. Whether this is academically sound or not is beside the point. Had the economy not been stagnant, one could have taken a critical position in regard to the role of the teachers in this situation. But the fact of the matter is that the economy has not been growing, the prices have been rising for several years and the entire direction of social change has had the effect of widening the economic gulf rather than narrowing it so that an average teacher has no choice except to do his strenuous best to stay in the ranks of the middle class. Despite his best endeavours and despite the fact that the investment on higher education has been growing much more steeply than could have been anticipated a few years ago, not even 33% of the teachers manage to stay within the ranks of the middle class. A majority of them have good reasons to be frustrated with their lot. Whether frustrated or otherwise, in their collective thinking and orientation, they are in favour of the status quo. This is becoming more and more untenable, however. At the present rate of expansion, the university enrolment which today stands at 3.5 million is likely to touch 5 million or so in another five years. With resources already over-stretched it would become almost impossible to sustain such a heavy superstructure. But when or how soon it gets modified is a matter about which one cannot speculate too precisely. In any case this is a matter which is also partly linked up with the other feature of the university system—the place of the university in Indian life.

India's failure to integrate her universities with her process of economic development is a matter which has parallels and implications even beyond the frontiers of this country. To have a situation where those passing out from the universities cannot find employment is as much a comment upon the strategy of growth that the country has adopted for itself as upon the irrelevance, to put it no more strongly, of the universities to its development. Whether universities are relevant to a country like India or not is an issue that has to be faced and not evaded. It is central to what is under discussion. Unless it can be established in terms of theory as well as practice that universities are important both as institutions and as contributors to the growth of economy, questions are bound to be raised regarding their role and usefulness. That such questions are not being raised in India today is not because they are not pertinent or urgent but because those who can raise them, teachers as well as other intellectuals, do not raise them. They are so passive in their responses and so lacking in perception in regard to the emergent trends that they themselves have become a part of the crisis of irrelevance. But more of that later.

III

Whatever might have been the situation earlier, in the modern world no country can have stability without growth as well as social justice. Both these requirements must be met, more or less simultaneously. If there is growth of national income but its distribution is inequitable and lopsided, it leads to social tensions. In certain situations, and this is particularly true of contemporary India, growth cannot take place unless at the same time it is accompanied by distributive justice. In fact, the absence of distributive justice hurts the process of growth. It would not be too much to say that this is precisely what is happening in India today.

Both in absolute and relative terms there has been considerable growth of national income in the last quarter century. Its distribution however has been so uneven and so biased in favour of certain sections of the population that a stage has now been reached where the country's economy has entered upon a period of prolonged stagnation. There are other economic and institutional reasons also for such a situation to have been reached. The sense of social injustice is however so acute and so widespread that it is impeding the very process of growth. To the extent that growth can take place with the help of increased resources, new and improved technology and such other adventitious factors, it is taking place. But to the extent that it is dependent upon good motivation and good performance, it is being thwarted.

It is astonishing how throughout history men have accepted poverty as a way of life. For centuries together they have accepted this situation with passivity and resignation. What awakens the feeling of protest in them is either the glimpse of a better life which seems to be within their reach or a feeling of oppression and injustice. In other words, men accept poverty but not injustice. To argue that seldom has there existed a completely just society is not relevant here. Somehow or other, when men are persuaded into believing that the order of things in which they live is just or that it cannot be otherwise, most people do not protest. Even if it means stark and unrelieved poverty people still accept it. How they get deluded into believing such a falsehood is totally beside the point. What is important is the fact that they are led to believe that, all said and done, most people are getting their deserts.

Indian polity is unstable today because more and more people are coming to believe that they are not getting their deserts and, secondly, they see some people enjoying a much better life than the overwhelming majority feel they are entitled to. These two factors are creating all manner of tensions in the social sphere and gross distortions in the economic sphere. Higher education by its very nature cannot remain unaffected by these pulls and pressures. So much of what is wrong with higher education today arises from the mismatch between the imperatives of growth with social justice and growth organized in the interest of certain sections of the society.

One particular aspect of the mismatch might be referred to in some detail. About two decades ago when the total outlay on education was 15 to 20 per cent of what it is today, the investment on higher education was about 15-16 per cent of that. Today the share of higher education has risen to something like one third of the total outlay on education. That this has been done at the cost of other sectors of education, particularly elementary education, is explicitly recognized by the decision to allocate something like half of the total outlay on education in the Fifth Plan (such as it is) to elementary education. The outlay on higher education however will still continue to be considerable. Only in terms of its proportionate share will the percentage come down to some extent.

The question to ask here is how did this come about and what were the pressures—social, political and economic—behind this increased emphasis on higher education. More concretely, were the pressures economic in character or social and political ? Or to put it another way, was higher education being treated as an agent of growth or was it looked upon as a facility for which there was extensive social demand and the demand had to be met somehow or other even if it meant neglect of some other important sectors of education?

Some years ago one could have taken more than one position in regard to these questions. For the last half decade however unemployment amongst engineers has been so acute that no one can any longer pretend that the demand for higher and professional education had to be met in the interests of the growth of the country. Today it is clear that the demand for higher education is social rather than economic. It is also clear from the fact that any attempt to recover the cost of education, even partially, from the students is met with resistance. What the State spends per student is much higher than what the individual student is required to spend. In consequence, the share of Government expenditure on higher education has been increasing steeply as compared to support from any other source. Today approximately two third of the total expenditure on education is met from Government funds.

A number of factors have thus combined to underline the class character of higher education. The rate of literacy is so low (it does not exceed 30% even after a quarter century of Independence) that even in statistical terms the chances of poor students entering institutions of higher learning are hardly perceptible. Secondly, since the bulk of enrolment at the higher education level comes from the middle class or the upper middle class, it is they who stand to benefit from the increased facilities for higher education. Thirdly, tuition fees are kept at a low level so that the element of State subsidy is remarkably high. And, finally, higher education has been allowed to grow at the expense of elementary and other levels of education, a distortion of planning and investment which is now sought to be corrected in a fairly drastic manner.

This emphasis on higher education is an aspect of the strategy of growth which has been followed by the country for a quarter century now. Whatever be the merits of this strategy otherwise, one thing that it has failed to ensure is social justice. If anything it has perpetuated and strengthened privilege and injustice. Not only do people feel that they are not getting what they deserve, they also feel that a substantial majority of those who are doing well for themselves do not deserve to get what they are getting. The social and economic implications of this state of mind are so far reaching that what is at stake today is not only the future of the Indian university but also the future of the Indian polity.

IV

Whether the Indian university can survive the impending crisis—or a series of them—of the Indian polity is not a very legitimate question to raise. That is for the simple reason that the university has no autonomous existence outside the polity. The Indian university like any university system elsewhere, is very much a part of the polity and, to that extent its survival depends upon the survival of the Indian polity. How the problems of growth and of social justice are resolved does not have to be discussed here. In what manner the Indian university will have to be restructured and given a new focus in the changed circumstances is however very much a part of the argument under discussion. Three issues have already been identified, two of them directly and one by implication. These may now be taken for further analysis.

One was described as largely a matter of definition. In specific terms however, it refers to the question of drawing a line of distinction between undergraduate and postgraduate education. As long as this distinction cannot be clearly established, it is obvious that the Indian university will continue to be clogged with numbers. Not only that, as long as the present strategy of growth is not changed, the Indian university will never be able to discover its identity, nor indeed its parameters of functioning.

Today the Indian university is being made to perform tasks which are clearly beyond its range of responsibilities and therefore beyond its capacity also. A university can train people for jobs that are either available or are expected to be shortly available. It can do nothing to create jobs. Nor can it be one of its responsibilities to pacify those within its portals and keep them occupied till such time as jobs become available. The universities however are being obliged to discharge these responsibilities today even though they are not competent to do so. One could even say that the universities are being treated as safety mechanisms for the mounting anger and frustration of students who are unable to get jobs. Could there be a cheaper and socially more acceptable way of looking after three million young men and women than to enrol them in the universities ? To have them let loose in the streets would start a conflagration which it might be difficult to contain.

Evidently, the universities are waiting rooms for those young men and women who are preparing to enter life. They are not always anxious to have university education. Quite often they are neither well motivated nor well equipped for the purpose. What they need is a degree so that they can get a white collar job. But there are too many people chasing too few jobs. Under the strain of impossible expectations and intolerable pressures, the university system is breaking down. What is worse, it is difficult to see how the universities, acting on their own, can do much to rescue themselves from the almost permanent crisis in which they find themselves.

The basic issue confronting the Indian polity today is how to ensure a rate of growth which is high enough not only to neutralize the growing pressure of population but also to enable the teeming millions to get out of the morass of starvation and squalor. These twin objectives however cannot be accomplished without most people being made to believe that the system in which they are living is basically just. Whether the belief is well founded or unfounded is not important. What is important is that such a belief should be shared by the wide mass of people. In contemporary India the situation is exactly the contrary. The feeling of being discriminated against is so all pervasive that the legitimacy of the system is being called into question almost all the time. As most people perceive it, there is a vast loot in progress. Whoever can help himself to whatever is available gets away with it. There is no question of what belongs to whom and whether he has a right to have what he has. Any question of what is right or wrong is therefore a marginal issue in such a situation.

To some people this may appear to be an attempt to caricature what is happening. The system is neither so erratic nor so corrupt as it is sought to be suggested here, it will be said. This would be to ignore one basic law of social change; the important thing is what is emerging, not what is decaying. The general thrust is in the direction of grab-whatever-you-can. The number of people who still do their job honestly and with some sense of satisfaction is fairly substantial. But the number has been declining steeply and with the passage of time the decline is likely to be still steeper. This is leading to two devastating consequences. One is the undisguised increase of corruption at almost every level. The second is its impact on the general level of productivity.

High productivity is the end product of a combination of several factors, one of the more important being the attitude to work and performance that most people bring to bear in respect of their assignments. In India, over the years a kind of cult of non-performance has grown up with the result that while the number of jobs has been proliferating there has been a marked decline in the output and quality of work done. Excluding the armed forces, the Central and the State Governments have more than ten million employees and their total wage bill is more than the tax revenue collected by the Central Government in a particular year. For the last decade or so this expenditure has been mounting at the rate of 10-12% every year. The country today faces a situation when a very substantial part of the increase of the national income goes to meet the costs of this bloated bureaucracy. In a sense therefore, the country is caught in a vicious circle. National income is not increasing because productivity is low and productivity is low because whatever be the increase, is largely appropriated by the bureaucracy. In fact the bureaucracy has become so enormous and so well-entrenched that it constitutes the largest pressure group in the country. Cases are not unknown where in certain parts of the country they have held the whole administrative machinery to ransom in pursuit of their parochial interests.

To some extent university and college teachers too belong to this pressure group. Their number is not very large. It is in the neighbourhood of 1,50,000. Nor do they constitute by any means a particularly vociferous group. In their social outlook and attitude towards performance however, they are not at all different from others who are part of the general bureaucratic structure. Were the teachers aware of their professional obligations the situation could have been saved to some extent. As it is, professional awareness is absent and in addition teachers suffer from the same sense of dissatisfaction as other people have. This makes the academic situation particularly difficult.

As far as one can see, the situation would continue to be difficult for some time. It is not possible to say at what point of a time it will change. Two important pre-conditions for a real change are a sharp decline in numbers and a total re-orientation of the outlook of teachers. To some extent the two are inter-related and even inter-dependent. Pressure on the university will be eased only when the school system is strengthened as well as diversified and, secondly, new avenues of employment are opened up for the young people. These steps involve such far reaching social and economic changes that without a basic shift in the strategy of growth being followed by the country today no step in the new direction can be taken. Once these steps are taken the Indian university would be free to discharge its basic functions. These are not particularly different from the functions discharged by universities in other countries. Only in a country like India would their role of training skilled manpower in relation to the manpower requirements of the economy receive somewhat greater attention.

What would happen to the teachers manning the university system would still continue to be a problem. Their quality has declined so steeply in recent years that even to hope that things will not deteriorate further looks like an exercise in optimism. No university system in any country is known to have regulated the affairs of the academic community through bureaucratic means only. These means might be somewhat relevant in other situations; in the academic situation they only make things more complicated. Teaching at the higher level is different from any other kind of work. Nothing is more crucial to a teaching situation than the ability of the teachers to teach and the willingness of the student to learn. In respect of both these requirements there are strong reasons to feel concerned and indeed frustrated.

But if the Indian university is to survive as a meaningful institution this situation will have to change. Professional awareness will have to grow. No one today can answer the question how it will grow. The only definite thing that one can say is that it cannot be imposed from without. The impulse for change will have to come from within. Outside influences will help but they can be no means prove to be a substitute for attempts at self-regulation and self-regeneration. In specific terms, reduced pressure on universities would create the conditions for the liberation of the Indian university from its present crisis. But by itself this will not accomplish everything. The battle for professional standards will have to be ultimately fought within the universities and by the academics who constitute the university.

Today the university is virtually indistinguishable from the market place. In the changed circumstances the university will have to evolve an ethic of its own. So depressing is the situation today that such a hope would be regarded as utopian. This would be taking a somewhat static view of the situation. The Indian university has to evolve if it is to survive. The only way it can survive today is to preserve its identity as an institution against the pressures of the market place. That these are too many and too oppressive is not enough reason for the university to abdicate its responsibility to think. What is undermining both its integrity and its vitality is the reluctance of academics to involve themselves in the problems facing the polity. To be rendered irrelevant in any situation is a misfortune. But to become irrelevant, when the choice to be relevant is available, is both a misfortune and a folly. No one other than the academics can be blamed for it.

India in the 80's and 90's

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IT IS ALWAYS an irresistable temptation to wonder what the future holds for us. A big leap of 15 to 20 years in the future and it will unfold for us many of the things and events which will be spectacular and prominent a decade or two later. It is often fascinating and amazing to speculate how life in our country will have changed by then. Will the scientific and technological development have the future studded with happy and comfortable ways of life? Or are there going to be more miseries and harder problems which will be a dread for us? It is but human nature to tilt on the optimistic side and hope that the humanity's progress will march towards a better and happier style of life.

Pondering about the future, imagination can be applied extensively and intensively to picturize what life will be like in the 80's and 90's in all its varied aspects. However, such an attempt will be too bold for the present purpose and almost next to impossible in such a short paper. Emphasis therefore will be laid on only the educational aspects in our country. At the same time, it must be admitted that the educational practices and problems can never be considered in isolation. The educational development of a child is intricately related to all the other aspects—social, economic, home conditions, political and others—thereby in thinking about the educational practices, there will be a reference to some of these wherever necessary.

The picture of our country emerging in the 80's and the 90's will be that of crowded cities, stuffed with big and tall buildings containing small-room apartments, fast vehicles on the roads and across the country, disappearing forests, more electrical and electronic gadgets occupying industries, homes, offices and educational institutions and better medical facilities. Simultaneously changes in society will have changed the complexion of social life in the country and may be that conditions of education might seem to be quite different from the existing ones.

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Thinking about the future need not be only an amusing imaginative enterprise. It can prove to be very useful in many ways. Not that what we believe must happen in all the details. But if we can visualise and anticipate, we can prepare ourselves better for the future by systematically planning for the same to make good of the opportunities likely to come our way and to guard ourselves against the dangers likely to befall us. Anticipation combined with ambition and caution should always prove to be a wise step towards progress.

The main factors that will contribute to the changes in our country in the future will be amongst others, the population growth, scientific advances, technological development, economic pressures, political consciousness in people, social awareness in the younger group, the concepts of democratic rights of the individuals and the fast changing concepts about the educational goals and practices. Out of all these the most vexing problem is going to be the population growth—or shall we call it population explosion? —which invariably upsets all the calculations of the planners. India has already a population which is more than the entire Western hemisphere and even with the measures of population control, the rate of growth has not declined much. Table No. 1 gives the census figures* over the decades upto 1971 and thereafter the projected figures in two columns, ones which are reported by the Committee of the Government of India and which are based on the assumptions of population control and the others which are based on the steady rate of growth at about 25 to 26 per cent.

This table will show that the actual population figures have exceeded the projected figures given by the Government Committee. It has also been estimated that by the year 2000, the present population would double, extending the 1971 census figures of 548 millions for our country to about 1100 millions. By that calculation, it can be expected that the population in our country in 1981 would reach 700 to 750 millions and in 1991 would approach 900 to 1000 millions. This anticipated rise in the population will make increasing demands on the society and the government to provide the educational facilities necessary for a successful living to larger number of people.

Let us have a look at the enrolments and the projected enrolments as presented in the Report of the Education Commission (1964-66). The figures for the schools are also given here as they are likely to exert pressures on enrolments in higher education in future. These are shown in Table No. 2. Even a hurried glance at the figures given in this table indicates a tremendous increase in the enrolment at all the levels, and the task of meeting the requirements for these is going to prove to be a strenuous and hard one. Certain conclusions immediately follow from these. Undoubtedly, the present educational institutions will fall far short for accommodating the pupils. The classroom will be found to be inappropriate, educational materials inadequate and the teachers insufficient for an effective programme of teaching-learning. The educational institutions must multiply rapidly to cope up with the pace of growth in enrolments. Many more schools, colleges, universities, technical institutions, professional and agricultural institutions will have to be established. This, of course, may have a limit beyond which further expansion may not be possible so that thinking must be geared to the multi-use of the existing facilities. Probably the educational institutions will run for longer hours, all days a week and all the months in a year for accommodating different groups. The concepts of informal education will shift part of the classrooms to home and other social agencies which will cater to the educational needs of the young people. Added pressures on the educational process will be felt on account of the ideas of continued lifelong education, according to which the young people will be joined in the pursuit of education by rising number of adults who will return to the educational institutions for re-education to keep themselves abreast of the changes in knowledge and skills in their fields. This might bring into the picture some industrial and business concerns who will take up the task of re-educating their employees to acquaint them with the latest trend of work in their tasks.

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*Census of India 1971, Census Centenary Monograph No. 3; Inter-censal growth of population, By D. Natarajan, office of the Registrar General, India, Ministry of Home Affairs, New Delhi.

162

It seems that methods of instruction also will have to change to keep in line with the growing number as well as on account of technological changes. Educational technology will introduce the hardwares and the softwares in the teaching programmes so that television, gramophone records, film strips, projectors will play an important part in reaching instruction to each child. Each home will practically be converted into a miniature educational institution and the bigger institutions will in turn conduct the programmes of individual contacts for few students at a time.

More frequent use of computer also is envisaged in the future. The most obvious trend seems to be the demand for education from that section of the society which remained neglected so far. And the differences in the environments in which these people have been brought up may pose many more problems in conducting the educational programmes. For the sucessful educational development, a good social development of the individual is entirely essential to make him accept in a favourable way whatever is done for him by the educators.

Uniformity of the educational programmes for all may also not be able to stand long and the pupil's intelligence, aptitude, interests, his social background and other relevant personal and social data will have to be taken into account before drawing up an educational programme for him.

With the explosion of knowledge in every field, the task of instruction will prove to be an arduous one. The emphasis on specialization two decades back will shift to broad-based learning even at the master's and doctorate level. This will change the structure of the postgraduate courses to some extent. Similarly more and more demand for research facilities will pose a problem for the university authorities with respect to providing these facilities as well as for maintaining high standards of excellence in teaching as well as in research. The increased number will be a threat to efficiency in these fields.

The growing number of students might also dictate a larger share in the participation of the university administration. They are already members of the Court, the Academic Council and the Executive Council in some universities.

There is at present a wide-spread unemployment of the educated in our country specially in the traditional Arts and Science courses. Vocationalisation of general education will be one of the ways to tackle this problem. Vocational education as an integrated part of general education will be a trend in the 80's and the 90's . For this purpose naturally a number of vocational schools and polytechnics will come up. Some of these will also act as centres of practical training for the students of general education in the University at the undergraduate level.

The economic implications of the expansion of the facilities for higher education for larger numbers might be somewhat embarassing to the government but gradually one must come to terms with reality. The present policy of the UGC to consolidate and strengthen the present programmes rather than stress expansion programmes which had been done in the last few five year plans will require some reconsideration in view of greater demands for education.

The larger number also may bring a trend towards informal education. Many short term intensive courses will replace the formal instruction. Undergraduate instruction will move in the hands of the colleges and the Universities will cater entirely to the post-graduate instruction. It should not be a surprise to expect some universities coming up which will be devoted only to research. A beginning to this effect has already been made in the USA in the shape of Rockefeller University.

Table 1

Year	Population in millions	Percent increase	Projected growth on population control	Projected growth on steady rate of growth
1901	294	—	—	—
1911	315	6.7	—	—
1921	319	0.9	—	—
1931	353	10.9	—	—
1941	389	15.06	—	—
1951	357	13.3	360	—
1961	439	21.6	410	—
1971	548	24.7	460	—
1981	—	—	250	685
1991	—	—	—	860

Table 2

Enrolment Figures at Different Levels

Period/Year	Primary I to IV in mlns.	Middle V to VIII	Second. VIII to X std.	From XI to XII	Higher Education					
					Under-graduate	Post-graduat MA/ MSc.	Research	Under graduate	Post-graduate & Research	Total Higher Education
1950-51	14	3	1.5	0.3	0.2	0.02	0.001	0.05	0.004	—
1955-56	17	5	2	0.5	0.3	0.025	0.003	0.08	0.007	—
1960-61	25	7	4	0.8	0.4	0.05	0.004	0.1	[illegible]	—
1965-66	37	13	6	1	0.8	0.08	0.008	0.2	[illegible]	—
1970-71	61	21	9	2	—	—	—	—	—	—
1975-76	72	32	13	3	1/0.05	**1**	—	0.5	—	2.2
1980-81	80	42	18	5	**1.5**	**1.5**	—	—	—	—
1985-86	76	49	24	7	2/0.08	**2**	—	**1**	—	4.2
1990-91	**84**	**54**	**31**	**9**	**3**	**3**	—	—	—	—

Bold figures are based on growth curves.

Higher Education in 1980's and 90's in India

N. V. SUBBA RAO*

THE POPULATION IN India is growing at an annual growth rate of 2.2% whereas the student strength in colleges and universities is increasing at a much faster rate, at about 12% every year. In 1950-51, the total number of students in universities and colleges was approximately 4 lakhs, whereas in 1970-71, it rose to 31 lakhs. If we project these figures we will have student enrolment of 96 lakhs in 1980-81, 250 lakhs in 1990-91. Therefore, the main problem that has to be tackled would be to find suitable means for training such a large number of students in the colleges and universities. It may also be pointed out that there are some States which are backward in regard to higher education, such as Orissa, Rajasthan, Bihar, Madhya Pradesh and Andhra Pradesh, falling much below the all India average of 5,000 students per million population. Apart from the problem of numbers mentioned already, the problem of the quality of teaching and type of courses to be introduced in the 80s and 90s will have to be carefully considered.

Problem of Numbers: In perspective planning, the number of colleges to cope up with the student enrolment in 1980 will be approximately 10,000 and in 1990, about 25,000. The number of teachers in our universities and colleges, in 1969-70 was approximately 1.30 lakhs, and if we project these numbers into 80s and 90s, we would need at least 3.90 lakhs and 10 lakhs of teachers. Since a Master's degree is the minimum qualification for employment of teachers in colleges, the turn over of Master's degree holders will have to be increased enormously in the years to come. It may be noted that the number of Master's degree holders produced in 1969-70 was approximately 50,000. Each degree college with a total strength of 1000 students requires an investment of Rs. 15,00,000 on buildings, equipment, library etc. As a result, extra investment during 1980s will be to the tune of

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1,000 crores of rupees and in 1990s, 2,250 crores. One wonders whether a country like India can afford to have such an enormous investment in Higher Education, when it has not been able to give compulsory free education even upto 11$^+$, not to speak of 14$^+$, which has been provided in the Constitution. As the primary task of the country is to make the people literate and to give them minimum school education up to class VIII, it will not be possible for us to provide such a huge investment on higher education in the years to come. Therefore, there is a need for selective enrolment to higher education and for drawing up a programme of purposeful education for those coming out of the school. The educational system will have to be re-organised so that there is proper diversification after 7th and 10th standard in order to give them necessary vocational training.

Before making higher education selective and purposeful, it is necessary for the Government to declare that a degree is not essential for employment in secretarial services. Recruitment to Ministerial and Accounts services should be made after a suitable training of matriculates through secretarial and accounts courses organised in Junior Colleges. Only students with high academic attainment should be allowed to proceed for collegiate education for obtaining the first degree; even the first degree courses will have to be reorganised so that they are relevant to life. The district should be the unit for planning both for economic development and educational progress. The educational programmes should be interlinked with the developmental programmes in such a manner that the majority of the trained graduates is able to find suitable employment in the district itself.

Correspondence courses & Open Universities: In view of the high cost involved in establishing new colleges for undergraduate courses in the 80s and 90s, it is necessary not only to expand our facilities in correspondence courses but also to take steps for the establishment of Open Universities, at least one in each State. The unique experiment conducted in United Kingdom in this regard is worth emulating. Education through correspondence courses as well as by the Open University will be far less expensive than through formal colleges. Perhaps, this is the only way the country can meet the aspirations of a number of young men and adults who want to acquire knowledge and also university degrees. It is recommended that each State should organise an Open University, because of the problems of postal communication and of language medium. In order to broad base education and bring it within the reach of a large number of people every one agrees that mother tongue is the only convenient medium.

For establishing the Open Universities careful planning is a necessity and all the resources in the States should be mobilised to establish study centres and organise courses in the regional languages. Further, it is also necessary to make arrangements for continuing education to the citizens, as well as the teachers, by organising post-experience courses relevant to the needs of the society. If these steps are taken, it will not be necessary to increase the number of colleges at the enormous rate indicated earlier. As is well known, more Universities will have to be brought into existence, if more colleges are established, which would thereby involve high expenditure. The correspondence courses and Open Universities therefore seem to be the only solution to meet the educational needs of a growing population.

New Educational Technology: When once the programme of correspondence courses and the Open University is accepted, the educational technology will have to undergo modification; the radio and television has to be commissioned to impart education to the large number of candidates scattered throughout the country. The art of teaching through the radio and the television is different from the mode of teaching in a class room. The future teachers will have to be trained to enable them to undertake the new methods of teaching through correspondence, radio and television. Programmed learning and computerised techniques of teaching subjects are now being adopted in the U.S.A., U.K. and some other western Countries. Perhaps, we may also have to lean on the new techniques for imparting education to the growing student numbers.

Education to meet the rural needs: The Science, Engineering and Technology courses will have to be flexible; the colleges should provide the basic requirements which may be utilized to conduct new courses from time to time as per the needs of a developing economy. There is no point in turning out graduates of the same kind in large numbers, year after year, without looking into the employment position. In the case of job-oriented courses, the fields of study get saturated quickly, leading to unemployment among the trained graduates. In order to avoid this a situation, once in five years the existing courses have to be reorganised with suitable modifications to meet the new needs of the society. So far, we have not paid adequate attention to the needs of rural areas, particularly to agriculture and small scale industries. Our Engineering and Technology education will have to be geared to the requirements of these sectors. Institutes of the type of land grant colleges may have to be established in the rural areas so that the agricultural and natural resources of each district are fully exploited.

Faculty improvement: The quality of instruction in the Universities and the colleges will naturally depend upon the quality of the teachers. In view of the fact that knowledge is doubling itself in 6-7 years, it becomes necessary to bring back the teachers periodically for re-training. Every State should organise programmes for faculty improvement in various fields, by bringing back the teachers in colleges once in 7-8 years for further learning, so as to keep them abreast of modern knowledge. The expenditure incurred on such programmes is well-worth as it will bring in better quality of instruction. Meanwhile, some of the established institutions should be permitted to carry on educational experimentation for the benefit of the rest, instead of changing the educational pattern or structure frequently.

Continuous assessment and innovations in education: The present system of examinations will have to undergo change with a view to having continuous assessment of the student by encouraging him to make independent study through reading and writing assignments, and by solving problems etc. The number of formal class room instruction periods should be reduced and more and more time should be devoted to discussions and seminars. Similarly, candidates should be encouraged to carry out independent experiments in well-planned projects, which will be more stimulating and interesting than the routine prescribed laboratory assignments.

Need for controlled expansion in Postgraduate & Research training: The postgraduate and research enrolment has increased from 1960s to 1970s by about 300%:

Period	*Postgraduate*	*Research*
1960-61	58,900	5,000
1970-71	1,64,000	13,600

A large number of postgraduates particularly in the faculties other than Sciences and Medicine are unable to find gainful employment and therefore, proper thought will have to be bestowed on the need for future expansion. If expansion is at all needed, the type of courses to be organised at the postgraduate level has to be looked into carefully. Again the statistics taken statewise indicate that the training of postgraduate and research students is not of the same level in many of the States. Consequently, the States that are backward in regard to postgraduate and research education should be adequately supported to bring them on par with others. Universities like Agra and Meerut in Uttar Pradesh have very high proportion (25-33%) of postgraduate and research students compared to the number of undergraduates, whereas a number of other universities like Calcutta, Mysore, Osmania and Sri Venkateswara have very low percentage (2-4%). This is partly because some of the universities allowed a mushroom growth of postgraduate colleges, whereas the others organised postgraduate courses in a restricted way either in the university campuses or in postgraduate Centres. These imbalances have to be set right by starting more postgraduate Centres, where the proportion of postgraduate students enrolled to undergraduate is low. The number of candidates in Master's degree and Ph.D. courses of Engineering and Technology is appalingly low compared to other Faculties; steps have to be taken to increase the facilities for postgraduate education in Engineering and Technology so that the Engineering colleges and industries have better trained engineers and technologists.

Postgraduate courses and research: The admission of students to postgraduate courses and Research should be selective through a written test and oral examination. This could be conducted by a Board consisting of not less than three experts in the subject. Once students are carefully chosen for postgraduate courses and instruction is given by competent teachers, there should not be any failures at this level. It is also necessary for the State to meet the entire expenditure on the postgraduate students, when once selected for study and further research. If not the entire higher education, at least, the training of postgraduate and research students should be a joint responsibility of the Centre and the States.

The existing courses at the postgraduate level should also undergo a change to meet the new needs of the country, for example, courses like nuclear sciences, space science, energy sources, environmental sciences, water management etc. should be dealt in the Faculty of Science. Cooperation, social work, community development, urban and rural studies etc. should form part of the programme of the Faculty of social Sciences. Similarly, in the case of Commerce, new areas of study such as insurance, banking, transport, business management etc., should receive adequate attention. In humanities, the courses should emphasise on human approach to various problems, arising out of the modern developments in science and technology. In this way, the programmes of instruction should undergo a radical change and new areas of study will have to be brought into being in the 80s and 90s.

In addition to the introduction of new courses, a new pattern of higher education through special centres of learning should be brought into existence for learning and research, instead of the conventional universities of large size, covering several disciplines, thereby creating problems of indiscipline and disorderliness.

Improvement of quality in higher education: The Postgraduate and Research institutions should have highly competent and efficient staff. It will also be desirable to create in 80s and 90s a net work of viable Centres of learning, more or less on the lines of ancient gurukul system, with a view to provide instruction and character building in a co-ordinated manner, emphasising more on the development of higher human values. These residential centres with a limited number of students should be autonomous and should be capable of providing high quality original work and offering courses of an inter-disciplinary nature, not ordinarily provided by the universities. Such institutions will be an asset to the country if they are staffed with excellent men not only great in their intellectual achievements but also high in their moral out-look. Further, they should have the freedom to select the students who are capable of following such an academic programme.

The Central Government should establish an "Educational Policy Cell" for constantly reviewing the structure and content of higher education taking into account the needs of the future. Perhaps, in 80s and 90s, the education of the student should be enlarged to enable him to participate in significant community activity. In addition to the Faculty, men occupying important positions in various walks of life, such as doctors, engineers, businessmen, accountants and planners should be involved in transmitting skills to students. The current problems in respect of a social, economic, and political life should be frequently discussed between the students, teachers and the public so that the students have direct contact with community life. It is necessary to involve the students in various developmental programmes and projects to familiarise them with the role they have to play in future.

India in 1980's in Relation to Higher Education

G. R. MHAISEKAR*

THIS PAPER ATTEMPTS to project a broad outline of the wider spectrum of the higher educational field as it ought to be (one never knows for certain what it would be) in the eighties in India. Logically, such a projection can only be hypothetical: and yet, in many respects can be pragmatic in character. And the pragmatic nature depends upon its practicability. The practicability of a project depends mainly on the availability of resources in terms of money, men and material. It would also need management and morale.

Since time is three dimensional peeping into future implies, nay, necessitates looking back into the past from the present base. Generally a decade is taken as a yardstick for measuring the pronounced changes affecting different walks of life. For each passing decade provides the take-off for the coming one. It would, therefore, be meaningful to recapitulate, in brief, some of the broad and important features underlying the changes sweeping over the field of higher education in the last four decades preceding 1980s. Such a recapitulation might even indicate the evolutionary trends and the mutational factors. This is particularly important and true in the case of an underdeveloped country like India whose independent history has just passed the quarter century mark. This apart, a projection of this kind would also throw up new challenges and provide guidelines for perspective planning in the field of higher education in India.

THE FOUR PRECEDING DECADES : (1940-1980)

In recapitulating the special features of the last four decades I have deliberately refrained from aiding statistical tables for they speak of things too conspicuous or too conjectural. However they have been used sparingly to support statements where required.

1940s: It was mostly a decade of horror and stagnation, holding out a faint ray of hope of emergence towards its end. The II world war in the first half and its aftermath in the second half left the world (irrespective of the involvement or otherwise of the countries in the war) reeling under its impact. Defence was the only field that remained unaffected with stagnation. The end of the war heralded independence to a few colonial countries with India heading the list. As was to be naturally expected independence provided relief to pent up aspirations. The emerging countries began to dream of a big leap forward. Hundreds of scholars were sent abroad for higher education.

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Two things deserve mentioning here. (1) Sir John Sergeant's Scheme for the post-war approaches to education in India and (2) Dr. Radhakrishnan's report about higher education. Unfortunately both suffered neglect. The Sergeant scheme got filed up in the history of education, while Radhakrishnan's report is used as a reference work whenever it is convenient to do so.

1950s: It was a decade of the beginning of exuberent expansion. The desire for all round progress had its impact on primary and secondary education. Hundreds of new schools came into existence. The need for professional and technical education was being felt and pact came the Mudaliar Commission Report stressing diversification of studies at the secondary level. This led to the establishment of multipurpose high schools. The number of colleges also started increasing. And quite a few new universities sprang up for reasons diametrically opposed. Some of the new universities were established to share the burden of the unmanageably large number of colleges affiliated to the existing universities, while others to initiate higher education in the hitherto neglected areas.

The important features of the decade under review were :

(a) Establishment of the UGC.

(b) Entry of the 'first generation students', particularly from the backward classes, albeit in a trickle, to institutions of higher education.

(c) Foreign-trained scholars returning home to find themselves 'misfits' in the then existing frame-work. The seeds of discontent sown in their minds have resulted in the much talked about phenomenon of the sixties and seventies—'the brain-drain'.

1960s: It was a decade of continuing expansion in the field of higher education. It was also the period which helplessly witnessed the baneful encroachment of politics over academics resulting in the birth of 'campus unrest'.

The spate of expansion begun in the preceding decade continued unabated. But this was rather lopsided, as could be seen from the following:

The twenty years between 1950 and 1970 had witnessed disproportional rates of growth in primary education (four times), secondary education (five times), degree education (nine times), postgraduate education (seven times) and research education (seven times). Thus we have an inverse pyramid, whereas it should have been the other way.

The main features of the decade were:

(1) Unusual expansion of institutions of higher education including those of professional and technical education.

(2) Large scale influx of the 'first generation students' in colleges.

(3) Financial assistance from the U.G.C. to universities and colleges for their development.

(4) The submission of 'Education Commission Report' popularly known as the Kothari Commission Report, with its comprehensive and all pervading recommendations pertaining to all educational matters in the country.

(5) Revision of primary and secondary school curricula.

(6) Acceptance of the new pattern of education 10+2+3 aimed at achieving the following:

  (a) vocationalisation of education at the end of the first stage—Secondary School Leaving Certificate.

  (b) to relieve the colleges from the burden of having on their rolls students with no incentives for higher education.

  (c) to have students of sufficient mental maturity at the degree course level.

  (d) to enhance the standards of degree courses by making them of fifteen years duration instead of fourteen years.

(7) Acceptance of the concept of honouring institutions of higher teaching as "deemed universities". All I.I.Ts and a few others acquired such status.

(8) Increasing participation of the UNESCO in the educational activities of the country.

(9) Increasing frequency of visiting professors.

(10) The beginning of the so called 'Brain-drain'.

(11) New concepts of education being discussed at seminars and discussions—such as informal education, continuing education, correspondence education.

(12) The rise of "regional universities", a new phenomenon having its hold on the areas of jurisdiction.

(13) Teacher's organisations and their growing strength.

(14) Wastage at all levels, right from the secondary stage to the post-graduate stage assumes proportions of grave concern.

(15) The alarming wastage turned the attention of the authorities to the task of examination reforms; a subject much discussed/and still being discussed adnauseum at a number of seminars and workshops. It was all talk and no action except for the introduction of semester system in a few universities and that too at the post-graduate level.

(16) Another unacademic practice of grave concern taking its roots

in this decade was the appointment of the Vice-Chancellors on political considerations without any regard for academic and administrative excellence.

(17) The last and the most important was the rise of "campus unrest" in the second half of the decade. The unrest was supposed to be due to discontent mostly irrational, ending in meaningless movement. The spirit of permissiveness too added its own quota to the unrest in that it encouraged the students to demand participation in the administration of higher education.

(18) Provision of equal opportunities to teachers and all accepted as a basic principle.

1970s: It is an important decade just half way through its course providing as it does the background and the take off point for the eighties.

Many important developments have taken place already in the first half. They will certainly have a telling influence on the state of higher education not only in the eighties but also in the remaining half of the 70s.

The expansion of higher education has been staggering. The following enrolment figures will give an idea of the phenomenal numbers:

Class	*Enrolment*	
	1950	1974
I—V	18 lakhs	67 lakhs
VI—X	30 lakhs	140 lakhs
College classes	2.5 lakhs	30 lakhs

Technical Education

	1951	1961	1974
Degree:	4,000	25,000	16,000
Diplomas:	6,000	45,500	32,000

Naturally this phenomenal growth had its impact on the standards of education. It also led to the rise of a number of sub standard institutions. Some of the important features can be enumerated as follows:

(i) Things seem to be moving in the right direction at last since there is a growing realisation of the importance of pre-primary education.

(ii) Realisation of the need for correspondence courses which are being successfully run by some universities.

(iii) The need for the revision of curricula both at the collegiate and

secondary level co-ordinated suitably to fit in the revised pattern of education 10 + 2 + 3.

(iv) The functioning of college-school complexes in a number of places. In this way such colleges become area colleges.

(v) Emphasis on 'Social Service' and 'work experience' has activised colleges and schools in this direction. The NSS too has been quite active in the colleges for the last four years.

(vi) The country is grappling with the hydra of unemployment of the educated on a scale never known. Even the technocrats and professionalists could not escape the fangs of unemployment. This is reflected in the considerable drop in the number of admissions to the technical institutions from 1971 stabilizing at a figure three years thereafter.

(vii) The vociferous demand made by the student organisations seeking participation in the administration of universities and colleges has resulted in partial acceptance of the demand at least in a few universities. And this in fact has encouraged them to put forward many more. They have to be faced squarely and decided. The question of student participation is still to get its final shape. For it is still to be determined whether the participation should be direct or indirect, symbolic or effective, advisory or supervisory, by election or nomination, and above all if it should at all extend to academic field?

(viii) The teachers' organisations and the organisations of non-teaching employees are becoming stronger and stronger. They are taking even defiant postures at times. Yet neither do we find any academic or administrative exercise at their conferences nor any guidance coming forth from them. There is every fear that these organisations would take dictatorial postures by the end of the 70s.

(ix) There is an increasing frequency of the student movements on and off the campuses. These movements are like unguided missiles. Though they are based on genuine grievances, many a time, they end without gaining any material advantage. All political parties, directly or indirectly are involved in their movements. Yet they remain radarless for they are exploited by the political parties for their own selfish ends leaving the students in the lurch.

(x) The concept that a college should play an important role as an 'area institution' in the developmental activities of the area is taking its roots.

(xi) There is a growing realisation of the need for inter university co-operation (at least amongst the neighbouring universities or universities in a State) to avoid duplication of courses and

specializations and for co-ordination in many other matters.

- *(xii)* Air-tight compartmentalisation is giving way to the basic need of interdisciplinary functioning in applied research.
- *(xiii)* Faculty wise universities are being established particularly in the fields of agriculture, engineering and technology.
- *(xiv)* The Kothari Commission's proposal for 'Autonomous' colleges is on its way to implementation. The U.G.C. is very keen on its success.
- *(xv)* Above all, the crippling effects of 'shortages' are telling on education too as on other walks of life. Restrictions of varying degrees are being imposed slowly on expansion due to meagre finances.

More than money which still could be squeezed in at least to maintain the existing facilities, it is the shortage of paper, a worldwide problem, that is likely to have a more serious impact on education, in the coming five years and even in the next decade. For paper is the life of all educational activities.

Keeping the above background in view, I feel, it is possible to look at, with a greater certainty of conjecture, the state of higher education in the eighties.

THE NINTEEN EIGHTY

There is hardly any positive sign to encourage the proper management of higher education in the coming decade. The background provided by the '70s is very gloomy. Chaos threatens to engulf from all over. Shortage of money and paper; the rolling over of thousands of graduates in Arts, Science, Commerce and Law every year from the degree factories; the haunting spectre of unemployment; student stirs on and off the campuses endangering the normal functioning of the institutions; the crisis of faith in the utility of the education being imparted at present; teachers' organisations out doing trade unions; elusive examination reforms; the symbolic student participation in institutional administration (for good or bad time alone will tell) and many more are the hurdles in the way of education to become more effective and fruitful.

Keeping the above in view India will have to plan for the following in 1980s to salvage the ship of higher education from certain wreck.

I. UNIVERSITIES

It is now or never; a pressure—proof national policy forbidding the establishment of new universities has to be urgently implemented. It will have to be supported and strengthened by adopting the following measures:

(1) To open University Sub-Centres of postgraduate teaching and

research at two or three places within its jurisdiction by taking all precautions to eliminate duplication of courses at the univerisity and the sub-centre.

(2) To establish institutes of correspondence courses in the universities, for they would certainly contribute to easing the pressures on universities and colleges. There would indeed be more of real learning and evaluation through this method than through the regular class-lecture method which has no effective system of assignments, tutorials and continuous evaluation. They would also effect saving on expenditure being incurred in maintaining bigger colleges and might even obviate the necessity of opening new institutions.

(3) To restrict admissions of all and sundry to the higher courses as far as possible. This could be achieved through more "autonomous colleges", encouraged to go ahead with academic innovations and administrative freedom. Campus stirs could be put out by eliminating the disinterested students (the real trouble shooters) through restrictive admissions.

(4) To grant the status of "deemed universities" to a larger number of deserving institutes imparting instruction and doing research in different faculties and disciplines.

(5) To establish more faculty-wise universities: This proposal is likely to sound self-contradictory. But it is not so. At present there are a few faculties like medicine, engineering, home science, fine arts and physical education which have only one or at the best two or three colleges. These faculties have developed a self operating technique, their decisions are generally rubber-stamped by the larger bodies of the university like the academic council. There is no room for criticism. In their case deference to the seniors has taken the form of "obedience to the masters". Unless, at least five such institutions are brought together under a faculty university there is little hope of "fresh air" coming in. The proposal is academically very sound.

II. POLICY ABOUT COLLEGES

(1) Opening of new colleges should not be permitted in the coming ten years—1975-1985. Without any exceptions this should be the national policy.

(2) Optimum standards for a college should be fixed in relation to their numbers in the following matters:
   (a) Physical facilities like buildings, furniture and play grounds.
   (b) Library and reading rooms.
   (c) Specifications about laboratories.

179

  - (d) Expectations about co-curricular, extra-curricular and extra-mural activities.
  - (e) Perennial source of income—in no case a liquid one.
  - (f) Minimum and maximum numbers of enrolment.
- (3) 'Mercy-killing' method has to be employed in the case of sub-standard institutions to spare them from further contageous suffering.
- (4) The U.G.C. should have an effective say in matters of granting affiliation to a college. Suitable mechanism should be worked out.

III. The role of the U.G.C.

The U.G.C. will have to play an increasingly important and effective role in the management of higher education in the country. It has, no doubt, contributed its maximum, so far, within the limitations of resources made available to it, to the improvement of universities and colleges. It can, and it should provide the required leadership, guidance and even controls for healthy development of higher education. At present it mostly acts as an agency to provide financial assistance to universities and colleges after due scrutiny.

A study of the list of various U.G.C. schemes which have evolved out of experience indicates its keenness about the development of colleges. It also provides guidance in academic matters by conducting seminars, summer institutes and workshops. Yet one feels that it has not done what the N.C.E.R.T. has done for secondary education. Possibly this failure is due partly to some administrative difficulties (autonomy of universities) and partly to the limitations of men and money. However, one feels that it should be well armed to provide guidance, co-ordinate activities and impose restrictions where necessary in the following matters:

- (1) In bringing about inter-university co-operation.
- (2) In avoiding duplication of courses in neighbouring universities, at least within a State.
- (3) In implementing inter-disciplinary coordination within a university or college pertaining to :
  - (a) Research projects.
  - (b) Utilization of equipment and literature.
  - (c) Encouragement of research projects related to the area or the region.
- (4) In coordinating and channelising assistance from world bodies like the UNESCO/WHO in the form of:—
  - (a) Finance
  - (b) Equipment

- (c) Curricula
- (d) Establishment of UNESCO service centres like reference libraries etc.

(5) In establishing regional centres at least for the following purposes—
- (a) Research libraries
- (b) Film reference libraries
- (c) Providing research reference services on the lines of INSDOC
- (d) Documentary, cultural, educational and science film centres
- (e) Major equipment centres where free service (or on nominal charges) should be available to research scholars in Universities and Colleges.

(6) Providing models in—
- (a) Syllabi
- (b) Text books
- (c) Evaluation techniques
- (d) Inservice education of teachers
- (e) Homogeneous and heterogeneous subject combination.

(7) In placing limitations on specializations (now called fragmentation of disciplines) and in limiting comprehensiveness in studies.

IV. THE ROLE OF TEACHERS

It is very difficult to say anything about this component of education in view of its sensitive nature. But the risk has to be taken in stating some facts bluntly. A realistic evaluation of the existing set up makes one suggest the following steps be taken in the eighties to restore the respectability of the profession as a whole.

(1) That the teacher is a student for ever has to be accepted. Hence there has to be continuous education of the teacher both in content and in methodology. Every three years the teacher should be provided, compulsorily, with an opportunity of educating himself further at an institute or a workshop.

(2) Research must be made obligatory for a college teacher. The nature of research should also be defined for this purpose.

(3) A college teacher should take up atleast one 'area-topic' or 'topic of contribution' for his research.

(4) The appointment of a college teacher should be on contract basis or else a certain minimum of research publications be made compulsory.

V. CURRICULA

Time and again it has been pointed out by commissions that our syllabi have become out-dated resulting in the lowering of the standards of our degrees compared to those of the developed countries. That apart they have no relevance to the environment and day to day life. We do not revise them for fear of not being able to teach for obvious reasons. The following remedial measures be taken.

(1) The U.G.C. should continuously feed the universities with the latest syllabi obtained from the model universities of advanced countries.
(2) Text books should always cover the syllabus plus something extra.
(3) Teachers should be trained in advance to take up what is planned for future.
(4) Books should be made available to the teachers in advance.

VI. COURSES

The present courses of study offered at the institutions of higher education have become too old to be of any use. They should be re-structured and re-designed to provide the following:

(1) Provide such combinations of disciplines which would give the students basic knowledge plus the skill to apply the knowledge. A few combinations are suggested below:
    (a) Language + Stenography
    (b) Economics + Mathematics
    (c) Physics + Radio Mechanics or Refrigeration
    (d) Physics + Chemistry + Chemical Industry
    (e) Commerce (2 theory subjects) + Applied Banking or six months training in a commercial concern.
(2) Combination leading to purely theoretical study of disciplines leading to pure research.
(3) Combinations that will encourage inter disciplinary coordination and research, for example—
    (a) Botany—Chemistry—Physics
    (b) Zoology—Chemistry—Physics
    (c) Statistics and Economics.
(4) Complete vocationalisation of courses.

VII. STUDENTS

It is now an accepted fact that the 'first generation student' or 'the new student' is in the college and university. This student is deficient in many respects. Additional efforts will have to be made to compensate the inherent deficiencies. But at present this aspect is totally neglected. The following are the glaring deficiencies that require strengtheneing.

(i) Mother tongue
(ii) Mannerisms

(iii) General knowledge
(iv) Attitude to cultural activities
(v) Approach to hobbies.

Unless the above factors are rectified the idea of personality development would remain unrealised. Suitable programmes and activities will have to be undertaken on frequency basis at least in the colleges located in the mofussil areas.

VIII. STUDENT PARTICIPATION IN ADMINISTRATION

The symbolic beginning of this has started in the present decade. One is confident that students would realise the futility of their participation in university administration. They should be convinced of the negative results likely to yield because of their inept participation in academic matters where they have very little to contribute. This would also be another cause for groupism and factionalism in the student community.

However their participation in the administration of all cocurricular and extracurricular activities should be statutorily made obligatory. A comprehensive (though not complete) list of such activities is given below:

(i) The students forum
(ii) The Gymkhana
(iii) Hostels
(iv) Canteens
(v) Reading Rooms
(vi) Students' Aid Bodies
(vii) All Cultural Activities.

IX. EXAMINATION REFORMS

It is a problem that requires our serious attention and action. Very little has been done in this regard. The futile controversy over internal and external assessment has eaten away the whole issue. There is likely to be a revolt against the semester system.

At the risk of being branded as an ultra-radical I would venture to suggest that the examination system, in toto, together with the system of awarding certificates, diplomas and degrees be abolished. With a view to providing a working mechanism we should evolve and accept a multi-stream approach to this problem associated with the abolition of examinations. The design can be given as follows:

Abolition of Examinations

I	I	I
Courses to be conducted with continuous evalua-	Conduct courses and give certificates for at-	Conduct courses and test only those who

tion on voluntary basis.	tendance, with continuous evaluation on voluntary basis.	offer to undergo such evaluation and award certificates, degrees.

X. EVALUATION

The following systems of evaluation can be accepted:

(i) Self evaluation and *(ii)* neighbour-evaluation both to be employed in class room tests. They would save the appointment of a large number of tutors to evaluate tutorials and assignments. *(iii)* 'Juris' evaluation. The jury can be drawn both from teachers and students. A mixed combination will inspire confidence in the mind of students.

The problems created by the abolition of examinations and degrees could be solved to a great extent by the following measures:

(i) to conduct national examinations.
(ii) to conduct statewise examinations.
(iii) to conduct competitive examinations by the employing agencies.

XI. METHODS OF TEACHING

The lecture method would continue to dominate even in the eighties. It should be supplemented by guideline notes of lectures. Each lecture should be followed by a short test of ten minutes; the answers being assessed then and there only through self evaluation or neighbour evaluation. Teachers' handbooks should be made available even to college teachers.

I have thus tried to visualise the picture of higher education in India in the eighties. I have not added anything on welfare activities etc. since they are tolerably well looked after even now. In conclusion, I can only say that it is no time to mince matters. It is time for positive and drastic action.

D.U.P. No. 960—9-75—1.000